Manufacturers Record

Reg. U. S. Patent Office

FEBRUARY 1934

25 CENTS A COPY

FEB 10 1934

SOUTH MOVING FORWARD

Principal crops of the South in 1933 were valued at more than $1,760,000,000, the highest in three years. The gain of $620,000,000 over 1932 and $150,000,000 more than was received in 1931, is stimulating business in all lines. Freight tonnage has increased. Retail trade, beginning with December, has shown a marked growth over the corresponding period of a year ago. Tourist travel is greater and winter resorts from the Carolinas to Florida have experienced a revival of activity.

Industries are operating at a profit once more and in some instances textile mills are compelled to give serious thought to the investment of growing surpluses.

Reports submitted to annual meetings of bank stockholders show a greatly improved condition as compared with a year ago. As a matter of fact, banks at many interior points are actively seeking loans for their idle funds.

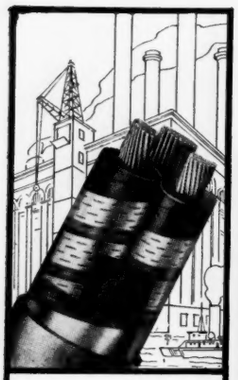
The improvement in buying is reflected in the business of shoe manufacturers. Record sales in 1933 have been reported from a number of the South's great plants.

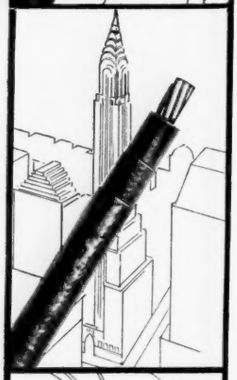
The cotton crop of the South is valued at more than $675,000,000, an increase of about 62 per cent over the previous season. As a recent dispatch said, "cotton is king again. All across the broad field that stretches from the plains of West Texas to the eastern seaboard, the miracle of something closely resembling prosperity has been wrought by the government cotton program. As it is, the South is the most nearly prosperous of any section of the country. You meet the evidence everywhere."

Due to the money farmers are getting from cutting acreage and the better prices crops have brought, buying in various lines is proceeding with increasing size and momentum.

$360,000,000 in construction contracts were awarded in the South in 1933. January construction awards increased 37 per cent over December and 155 per cent over January, 1933. As this finds its way into trade channels through wages and payments to the suppliers of materials and equipment, its effect will be far-reaching. Private industry is placing no inconsiderable part of these contracts.

Agriculture and industry face a better year than they did 12 months ago.





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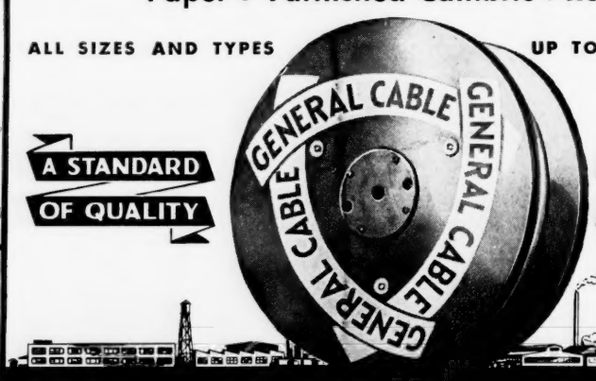

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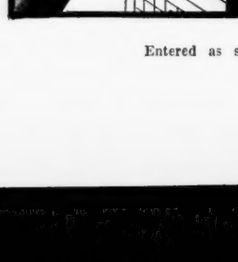
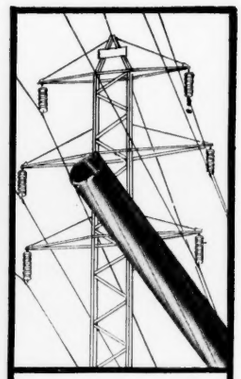
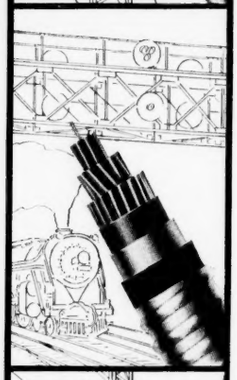
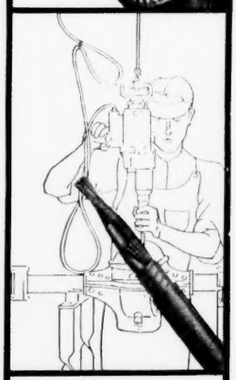
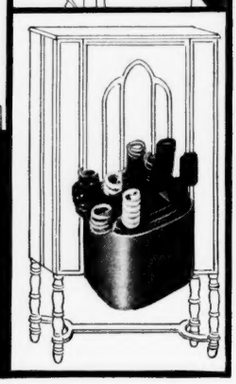
FOR OVER HALF A CENTURY

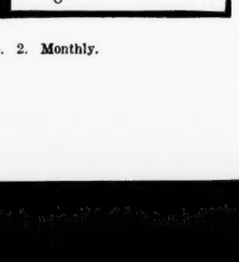












GENERAL CABLE CORPORATION

420 LEXINGTON AVENUE NEW YORK CITY

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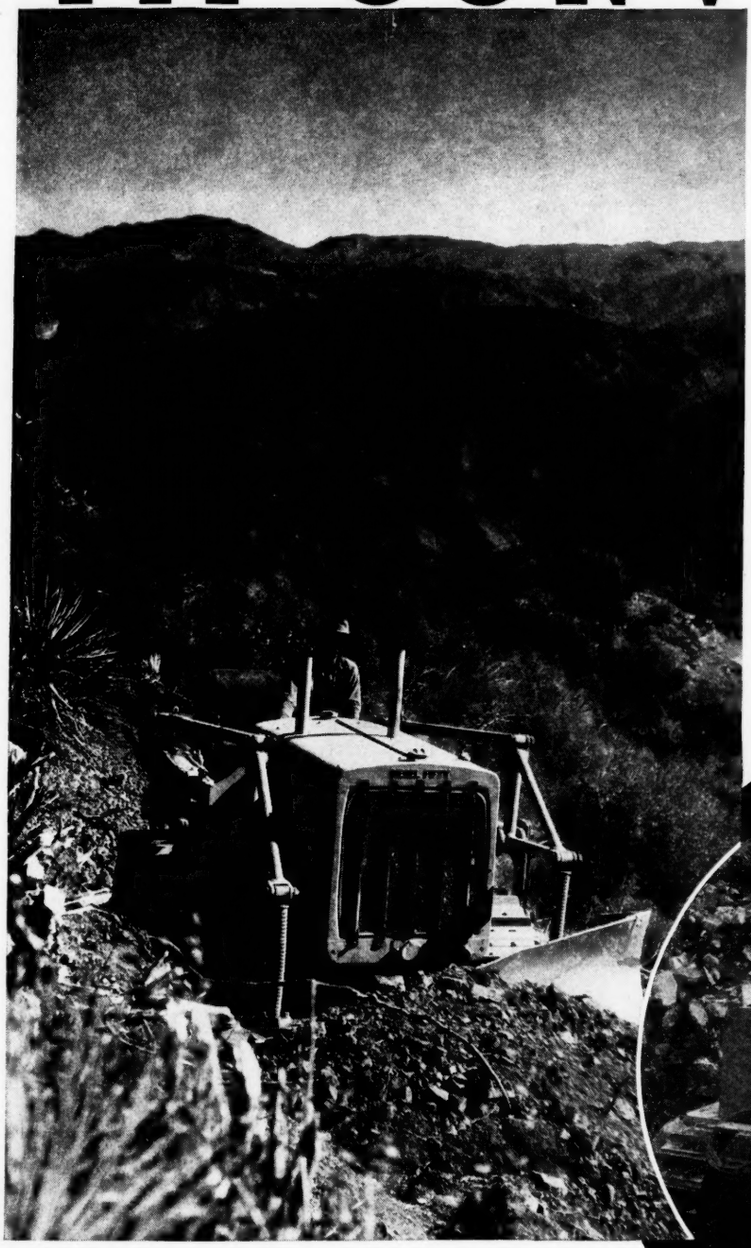
"I'M CONVERTED to the 'CATERPILLAR' DIESEL"

—says a Southern California contractor—and no wonder, with a fuel saving better than $150 a month.

It is *economy* that has put hundreds of "Caterpillar" Diesel Tractors to work on outdoor jobs everywhere. Economy of low-priced Diesel fuels. Economy of low fuel consumption.

Economy and power and sturdy dependability and simplicity of design.

"Caterpillar" Diesel Tractors are built in three sizes, and the engines that power them are available also for stationary and portable uses. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



▲ Carving a new road out of the mountainside in the Santa Barbara National Forest, this "Caterpillar" Diesel Fifty uses only 60c worth of fuel per 8-hour shift.

▶ At 11,000-foot altitude near Aspen, Colorado, this "Caterpillar" Diesel Fifty is saving power costs in the construction of a diversion tunnel.

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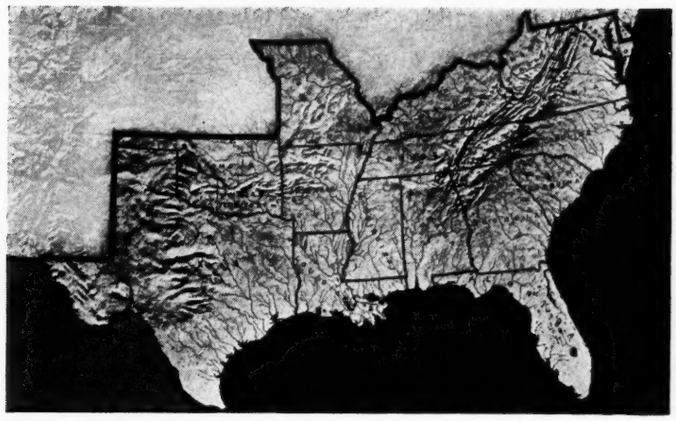

The South has 31.8 Per Cent of the Land Area and 33.6 Per Cent of the Population of the United States

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

by the

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Frank Gould, President

Main Office: Manufacturers Record Building, Commerce and Water Streets, Baltimore, Md.

Branch Offices:
New York—11 W. 42nd St.
Chicago—10 S. LaSalle St., Room 608

Subscription Rate: $2.00 a year (in advance). Single copies, 25c; back numbers, one to six months, 50c each; over six months, $1.00. Combination rate for Manufacturers Record and Daily Construction Bulletin, $10.50 a year.

Subscribers are asked to notify us of change in address to avoid delay in service.

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PUBLISHERS DAILY CONSTRUCTION BULLETIN AND BLUE BOOK OF SOUTHERN PROGRESS

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FOR EVERY PLANT AND MACHINERY USE . . .

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An improved combination chain—the block link of either malleable or Rex Z-Metal—the latter the strongest, most wear-resisting metal cast in chain.

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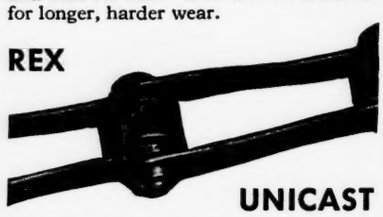

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The one-piece link—roller cast in place—makes it the most efficient malleable chain ever offered for eccentric loading on double strand conveyors.

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A malleable chain that can flex in short radii in any direction—will help on many conveyor problems.

OTHER REX CHAINS

The Chain Belt Company also makes many other chains in malleable, Z-Metal, Steel and Combination for every type of service—and sprockets of all types—take-ups—set collars—buckets. Write on the type that interests you.

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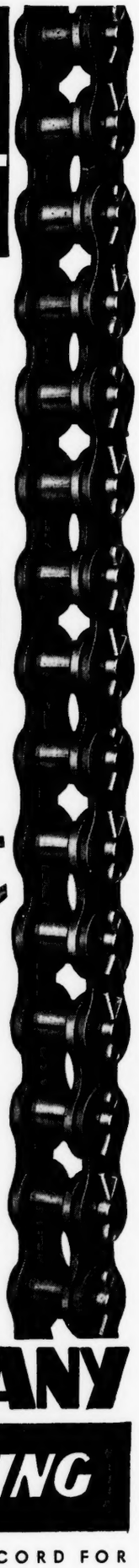

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PENNVERNON WINDOW GLASS INVITES COMPARISONS!

Compare it with other glasses for FREEDOM FROM SURFACE DEFECTS . . .

MAKE THIS COMPARISON. Take a sample of Pennvernon Glass and samples of other sheet glasses. Examine them impartially for brilliance of finish, for freedom from surface defects . . . on both sides of the sheet. You will find that Pennvernon wins.

PENNVERNON *wins again!*

AN outstanding characteristic of Pennvernon Window Glass is that its surfaces are remarkably free from defects . . . free from the scratches, burns and markings that often impair the brilliance and reflectivity of a window glass.

But visual evidence is more convincing than mere words. So we invite you to make the comparison described on this page and let your eyes prove to you Pennvernon's superiority in this respect.

Now, may we explain the reason? During the process of drawing the glass, no traction rolls, no foreign substance of any kind can touch and mar the surfaces of the glass until the sheet is cooled and finished beyond possibility of injury.

Actual comparisons with other glasses will also show that Pennvernon has greater transparency, more permanent whiteness, and better color transmission properties.

Specify Pennvernon Window Glass. It is available in single and double strength, and in thicknesses of 3/16" and 7/32", at the warehouses of the Pittsburgh Plate Glass Company in all principal cities, and through progressive glass jobbers and sash and door manufacturers. Write for samples to examine. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pennsylvania.

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PENNVERNON WINDOW GLASS

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The great National Cash Register Company plant at Dayton, Ohio, represents the ultimate in efficient plant operation. Accuracy, efficiency and practical attainment are in evidence throughout this great manufactory.

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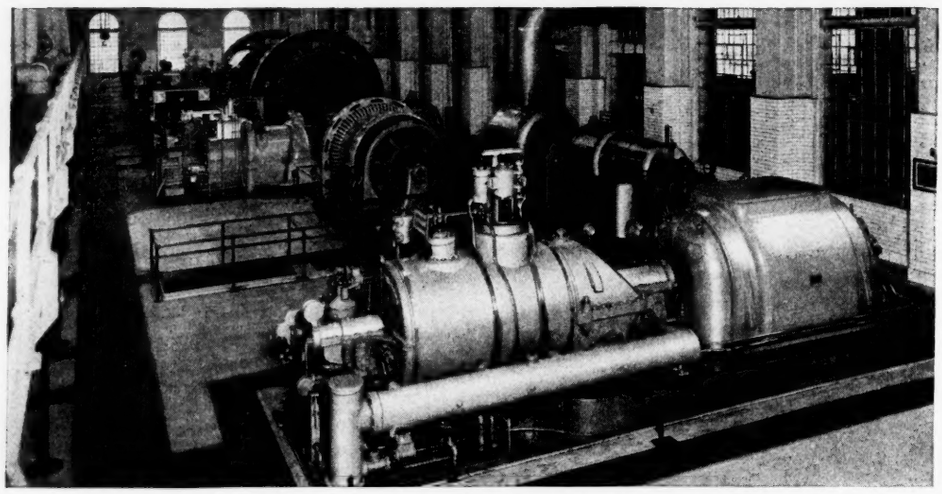
Aerial view of the huge, efficient plant of the National Cash Register Company in Dayton, Ohio



Interior view where Gulf Lubricants are used. Power is a large item of cost for most manufacturers. Higher wages and shorter hours are in effect in most plants today and increased mechanical efficiency in power plant operation will help meet this added expense

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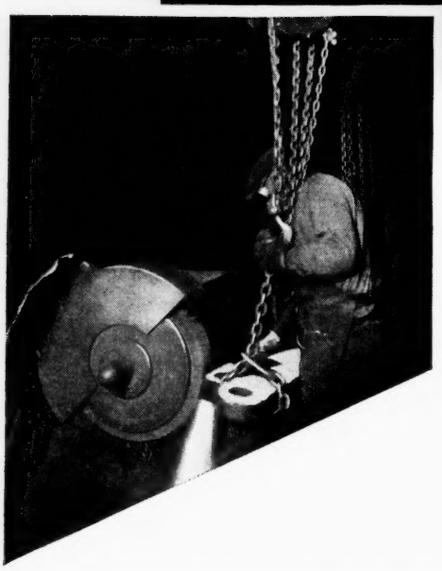

STEADY CONSTANT IMPROVEMENT

RESEARCH in the laboratory—research out on the grinding lines—has taught us much in this important business of cleaning room practice in the foundry. The result has been a constant steady improvement on both our high speed Redmanol bonded and the low speed vitrified grinding wheels.

There has been much in the way of manufacturing refinements—uniformity of wheel structure—balance between grain and bond—in bond density—in grain treatment.

And all of these improvement studies are evidenced in the keenness of Aloxite and Carborundum Brand Snagging Wheels—in their ability to cut with speed—to show long life—to create a state of improved grinding conditions and lowered grinding costs.

It is also significant that this research has developed new types of wheels for special foundry grinding applications. Further data on request.

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• Manufacturers Record •

THE BULWARK OF LIFE INSURANCE

LAST year, life insurance payments to policy holders and beneficiaries amounted to approximately $3,100,000,000. In the four years of the depression, they were paid more than $11,040,000,000. Death claims represented less than one-third of the total. More than two-thirds was disbursed for matured endowments, annuities, surrender values, dividends and disability claims. In the distribution of these stupendous sums to living policy holders and beneficiaries life insurance institutions have measured up to their responsibility during one of the most disastrous economic periods in the world's history. They have proven a trustworthy reserve in time of stress.

These billions of dollars made available through life insurance has been a major factor in cushioning the effects of the depression. This flow of money into the hands of people in every walk of life and throughout the nation has helped to relieve distress and ameliorate conditions that would have been unthinkable had the life insurance business of the country failed to function. That it did carry on in the face of tremendous odds and in the break-down of the securities markets and the banking system, and make further progress is a tribute to the resourcefulness and inherent soundness of the principle upon which it operates.

At the beginning of 1934 there was more than $95,000,000,000 of life insurance in force covering the lives of 63,000,000 policy holders, or probably one-half of the population of the United States. Despite the depression and the enormous drain on the life insurance institutions of the country, the amount of life insurance in force declined only 5 per cent from 1932. New life insurance purchased in 1933 was approximately $13,000,000,000, a decline of about 10 per cent in a year which was marked by unprecedented adverse conditions in business and financial circles.

Notwithstanding the unsettled and at times chaotic situation of 1933, the assets of all life insurance companies increased more than $381,000,000 to $21,135,000,000 as of December 31, 1933. Pointing out the life insurance assets back of the policies of millions of policy holders, Bradford H. Walker, president of the Life Insurance Company of Virginia, Richmond, at the last annual meeting of the Association of Life Insurance Presidents, said:

> "In our great national emergency, the institution of life insurance, by steadfastly adhering to its primary function —protection—successfully conserved the welfare of thousands of widows, orphans and other dependents, as well as of aged policy holders themselves, in the years to come who might needlessly have been robbed of their benefits by momentary and collective unreason. As a result, life insurance remains today the same protective giant of stability."

Investments and Reserves of 51 Legal Reserve Life Insurance Companies

December 31, 1933.

Farm mortgages	$1,533,000,000
Other mortgages	4,784,000,000
Total mortgages	$6,317,000,000
U. S. Government bonds	$653,000,000
State, county and municipal bonds	795,000,000
Canadian Government bonds	452,000,000
Other government bonds	17,000,000
Total Government bonds	$1,917,000,000
Railroad bonds and stocks	$2,906,000,000
Public utility bonds and stocks	1,826,000,000
Other bonds and stocks	598,000,000
Total	$5,330,000,000
Policy loans and premium notes	$3,435,000,000
Real estate	1,113,000,000
Collateral loans	10,000,000
Total	$4,558,000,000
Cash	$475,000,000
Other admitted assets	763,000,000
Total admitted assets	$19,360,000,000

The investment record of 51 legal reserve companies, with approximately 92 per cent of the total assets of all such companies in the United States, at the end of December, 1933, showed assets of about

$19,360,000,000, or a gain of $340,000,000 over 1932.

Farm mortgage loans decreased between January 1, 1933, and January 1, 1934, about $168,000,000 and city mortgages about $311,000,000, making a total decrease in mortgage loans of $479,000,000. The percentage of total assets held in this class of investment dropped from 35.7 to 32.6. Bonds and stocks showed a net increase of approximately $271,000,000 or gained in proportion to total assets from 36.7 to 37.4 per cent. Government bonds increased about $283,000,000, chiefly due to $232,000,000 increase in United States Government bonds and a $55,000,000 increase in domestic State, county and municipal bonds. Corporate security holdings decreased $12,000,000, railroad securities decreased $34,000,000 and public securities increased $18,000,000, and other corporate securities $4,000,000. The gain in real estate holdings of about $360,000,000 is somewhat larger than usual but the percentage of assets so held increased only from 4 to 5.8 per cent. Policy loans and premium notes increased $20,000,000.

Previous to the depression, the increase in policy loans kept in line with expansion of life insurance business and the percentage of total assets represented by such loans remained within 12 and 14 per cent between 1911 and 1929. The accelerated upward trend during the depression years is shown by the fact that this ratio increased since 1929 to 17.7 per cent at the end of 1933. The amount of policy loans outstanding at the present time is $3,435,000,000, an increase of $1,295,000,000 since 1929 as against an increase of $844,000,000 during the preceding four-year period.

In considering the extent to which policy holders have availed themselves of the opportunity to make use of their accumulated savings in life insurance, it will be recognized that this source of emergency loans enabled many thousands of people to save themselves from bankruptcy or actual want. The life insurance companies of the country have been a bulwark of immeasurable value.

FALLACY OF LOW PRICES

ONE of the repeated assertions of free trade advocates is that the consumer must be allowed to buy cheap foreign goods; that this competition is necessary to keep American prices low. It is their contention that goods, irrespective of their origin, should be purchased from whatever source they can be bought cheaply. They overlook or at least disregard the fact that low prices mean vanishing profits and increased unemployment.

We have within the United States the greatest market in the world. We produce approximately 50 per cent of the world's output and we ordinarily consume over 90 per cent of all that we produce. We reached this point in world trade because we protected our industries and workers from unfair competition with pauper-wage made goods of foreign countries. Are we to open this greatest world market in America to a flood of cheap imports that will eventually destroy industries that have been made possible by protection?

Given protection of an adequate tariff, American industries can continue to pay a higher wage and enable American workers to continue a living standard that is the best in the world. Operating under the N.R.A. codes which have raised wages and shortened hours, industry today must have further protection from cheap foreign goods. We cannot expect benefits of the N.R.A. if we adopt a free trade policy that will undermine domestic employment and prices.

UNSTABLE TAX BASE

THE last report of the Commissioner of Internal Revenue further emphasizes that the income tax method of raising revenue cannot be depended on in times of depression. Net income of the American people for the Calendar year, 1932, based upon the income tax returns filed up to August 31, 1933, was the lowest since 1916. Despite the reduction in personal exemptions which brought additional people under the income tax law, and increases in tax rates for individuals and corporations, taxable income was less than for 1931.

Returns of individuals reporting income for 1932 numbered 3,760,402 out of a total of approximately 75,000,000 adult population. Of the number making returns 1,864,969 were taxable and 1,895,433 nontaxable. In other words less than 5 per cent of the adult population of the United States filed returns and less than 3 per cent paid an income tax. The aggregate net income was $11,185,499,000 and the tax liability $324,744,000. As compared with the returns for the previous year, the number increased by 644,085 or 20.6 per cent, due to the lower exemption but despite higher rates, the total net income decreased by $2,045,852,000, or 34.5 per cent.

The number of corporation income tax returns for 1932 was 481,368, of which 78,775, or about 16 per cent of the total, show net income amounting to $1,851,575,000 and income tax of $277,689,000. The number of returns showing net income decreased 91,908 or nearly 54 per cent, as compared with returns for 1931 and the net income decreased $1,259,066,000, or about 44½ per cent. The number of returns showing no net income was 348,954, an increase of 79,250, or 29 per cent, as compared with 1931 returns, and the deficit reported was $6,420,293,000, a gain of $332,666,000, or nearly 5½ per cent. The term "net" income represents the gross income in excess of the deductions claimed under the law and "deficit" is the excess deductions over gross income.

As less than 3 per cent of the adult population of the United States pays income taxes and only 16 per cent of the corporations had any taxable income, clearly rates will have to go up or other ways of raising revenue adopted. The income tax places the burden on a few. The simplest, fairest and soundest tax is a general sales tax.

PRODUCTION CONTROL

HAD not the South ploughed up 10,500,000 acres of planted cotton last season, our over-production of cotton would have been ruinous because it so happened we had exceptionally favorable growing weather. As it is, we produced over 13,000,000 bales. The carry-over will be around 11,500,000 bales, which is equal almost to an average year's consumption prior to 1925.

Should we limit this year's cotton area to 25,000,000 acres, and production to 9,000,000 bales as is now being advocated, and should world consumption of American cotton continue at the present rate of 15,000,000 bales there would remain approximately between 5,000,000 and 5,500,000 bales, a more normal carry-over at the end of the 1934 cotton season.

America produces about half the cotton grown and all other countries combined produce the other half. But in addition to their own these other countries buy more than half of our crop. It is important to remember this in view of the prospect of increases in acreage and production abroad, and the plans that are in the making to further cut American production. For while the United States has been reducing cotton acreage, the cotton area in foreign countries was increased nearly 10 per cent and the production of foreign countries was increased more than 16 per cent last season.

Foreign growers evidently are making the most of their opportunity to profit by the higher prices, due largely to the restrictive policy we are following, all of which is natural and affords no ground for complaint, even though American consumers are carrying the burden of a processing tax to pay for limited production and higher prices. But what about the future effect on our foreign markets if production abroad, under no restriction, continues to increase? Will the experiment end as did the effort to control the British rubber output some years ago, which resulted in increased production through the opening of new sources of supply in other countries?

Proposals for cotton production control through licensing 15,000 cotton gins in the South and limiting the quantity of cotton that can be ginned for each grower are among the latest developments. When the total pre-determined quantity of cotton has been ginned, any remaining cotton will have to be left unharvested, or if harvested, the seed cotton would have to be stored.

Another suggestion is to levy a high tax on the farmer for cotton over-produced above his allotment, and in this way force him to destroy the surplus.

In view of the fact that the farmers have been paid money to reduce acreage, what will be their attitude toward these later plans?

It would seem if we are to get on a sane basis of avoiding over-production of cotton, wheat and other crops, and try to balance production to our own and world demand, we will have to adopt some form of producer licensing system.

As the New York Times points out, the new plan is based on a compulsory restriction of the crop rather than on a voluntary reduction of acreage. Acreage curtailment by means of retiring marginal lands is, of course, a different matter. With the specific object of reducing the immediate output of particular crops there is much to be said for limiting the marketable quantity rather than reducing acreage. The latter system leaves open too many loopholes and growers through intensive cultivation attempted to raise more on fewer acres. This has been one of the many reasons why the present system has failed to measure up to expectations.

The Manufacturers Record pointed out some months ago the weakness of production control efforts is that the rest of the world is not taking part in this regulatory movement, but is increasing production as we curtail. This is so in cotton growing, in textile manufacturing and in other lines. The sale of American products entering world trade and competing with world producers is adversely affected by the extent to which foreign countries increase production.

TAX GOVERNMENT PLANTS

IN referring to the editorial "Government Power Competition" printed in the January MANUFACTURERS RECORD, James A. Emery, general counsel of the National Association of Manufacturers, raises a question that has been discussed in these columns before—the taxation of public owned and operated plants that compete with private industry. Judge Emery writes:

> "I ventured a suggestion to the Ways and Means Committee, in the recent argument before it on taxes in response to inquiries made: That so long as the Federal Government undertakes to levy an excise tax on power, it ought to be levied on all publicly as well as privately owned plants. The authority of the Government to do so is not open to question, since the operation of a power plant is not the performance of a function of government, an issue which the Supreme Court has settled. Again, there is constant agitation for the taxation of bond issues of both the National and State governments. If one would tax the issues of securities representing the exercise of sovereign authority, what possible reason can be given for refusing to tax a business activity of government, and especially one which not only competes with private enterprise but does so by using funds which the private enterprise is compelled to contribute, and, as a rule, carries forward its public competition without regard to standard methods of accounting under which the private enterprise is obligated to operate.
>
> "I think there would be considerably less desire to expand municipal plants if they were subjected to the same excise tax as the private power plant, as long as the Government engages in that kind of policy.
>
> "What I have said is not meant to lessen my agreement with your position in opposition to the expansion of public competition with private operatives, but is, rather, one method of emphasizing it."

There is another phase of the question to be considered. If government ownership of power plants and railroads is established, from what source can many subdivisions of government hope to secure needed revenue heretofore furnished by power and railroad taxes? Railroad taxes in some communities and counties have been the sole support of their public schools. Without this revenue the activity and well being of these communities will be seriously impaired.

WOODPULP AND PAPER INDUSTRY OF THE SOUTH

Possibilities of Further Expansion in the South After Successful Commercial Test of White Newsprint Paper Made From Southern Pine One of the Most Encouraging Development Trends in Years.

By

A. Stuart Campbell
University of Florida

IN the latest year for which data are available, the following information concerning the paper and pulp industry in the United States is given: number of establishments, 883; persons engaged in the industry, 141,721; salaries and wages paid by the industry, $216,545,979; cost of materials and power, $723,360,707; value of products, $1,206,114,305; and value added by manufacture, $482,753,598. From these figures it is seen that the paper and pulp industry in our country is of considerable importance.

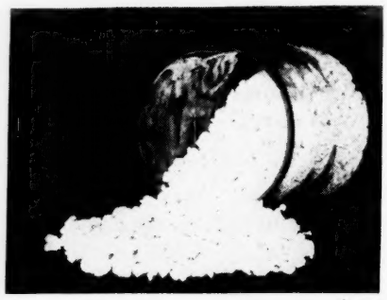
The United States consumes a much larger quantity of both paper and pulp than it produces, consuming over half of the world's production. Our annual per capita consumption of paper is 212 pounds, which is double that of any other country.

With consumption exceeding production by such an extent, it is not surprising that we import more than half of the total amount of paper, paper products, and pulp that we use. The largest part of these imports comes from Canada, and consists chiefly of newsprint paper and mechanical pulp, which is used mainly in the making of such paper. Two-thirds of the newsprint paper that is used in this country is imported from Canada.

The uses of paper and pulp are increasing rapidly, so the consumption of these products in our country should grow even greater. Paper and pulp are now used in place of other materials for a great many products. The paper carton has supplanted the old wooden box; shipping containers are now made of pulp instead of wood and metal; there is paper building board, paper roofing, paper toys and novelties of all kinds, paper containers for food products like butter and cheese, paper milk bottles and liquid containers, paper dishes, spoons and forks, paper towels and napkins. Many other examples could be given of standard articles now made of paper, and the tendency is for the number of such articles and the use of them to constantly increase. This should result in an increased demand for paper and pulp. The present total consumption of paper and pulp in the United States is more than 8,000,000 tons annually, and it is estimated that our annual consumption in 1950 will be about 14,000,000 tons, an increase of 75%.

The foregoing information concerning the supply and uses of paper and pulp in our country is given for the purpose of emphasizing the fact that there is room for a considerable expansion of

Bleached Pulp From Southern Pine



Pulpwood Storage and Handling
Southern Kraft Corporation's Panama City, Fla., Plant

production in our country without competing with domestic producers. It is the consensus of opinion of well-informed persons in the industry that this expansion will take place in the South.

To understand the movements in the paper and pulp industry, it is necessary to know something about the different productive processes. There are two main classes of pulp made from wood, mechanical and chemical.

Mechanical pulp is made by simply grinding the wood to pulp, in a solution of water, a stone grindstone encased in a cylindrical tube being used for this purpose. The wood for grinding is first cut into short lengths and the bark removed. No chemicals are used in this process. The wood must be light-colored, as discolorations in it would be reflected in the pulp. Almost all mechanical pulp made is used in newsprint, usually being mixed with 15%-25% sulphite pulp to increase the firmness of texture. Light-colored spruce wood is the ideal wood for the mechanical process, our newsprint paper coming from Canada being made mostly of mechanically-ground spruce.

There are three chemical processes, sulphite, soda, and sulphate, the first of these being acid and the latter two alkaline.

The sulphite process is more widely used in our country in the making of paper than any other process. The wood is barked, chipped and cooked in a chemical solution. The pulp is usually light-colored, and sometimes does not require bleaching. Spruce, fir and hemlock wood are very good for the sulphite process. Until very recently, it was thought that no pine wood could be treated by this process, as the resin in the pine would resist the penetration of the acid, and not be dissolved by it, which would prevent a high grade pulp from being produced. Also, the small resinous particles would interfere with the operation of the machine. Means of avoiding these complications have recently been discovered.

Battery of Electric Motors Driving Paper Machine

At Canton, N. C., Plant of Champion Fibre Co.

The soda process is used almost entirely with hardwoods, such as poplar, maple, basswood, birch, gum, beech, chestnut, and sycamore. The color of the wood is not important, as the coloring is usually dissolved in the cooking process. The pulp is commonly bleached to a pure white color. It possesses soft, bulky, and absorbant qualities, which are splendid for a high grade paper to be used for book, magazine, or lithograph paper. The soda process can be used for soft-woods, but the sulphate process produces greater strength and toughness. Soda pulp from these woods is hard to bleach. Resinous woods can be used, but at considerable expense, as much more of the chemical solution is required for them.

A new process, known as the semi-chemical, which is a combination of the acid and alkaline processes, is now being used successfully in the South. It is especially suitable for the pulping of wood by-products, and for some types of wood, is better than the sulphate process.

The pulp wood consumption in the United States in 1932 showed that 38.2% of the total for the country was by the sulphite process; 30.3% by the sulphate process; 20.3% by the mechanical process; 9.4% by the soda process; and 1.8% by the semi-chemical process. In the two-year period from 1930-1932, the use of the sulphite process decreased from 43.6% to 38.2% of the total, while that of the sulphate process increased

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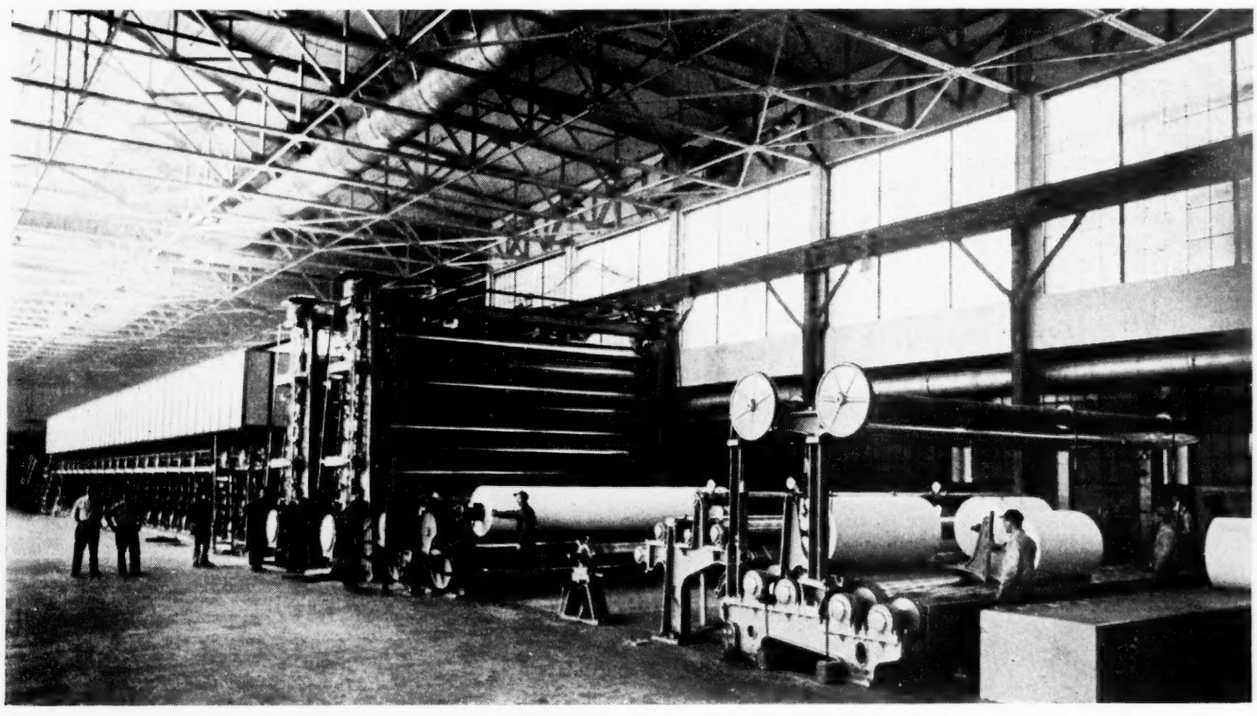

Final Process in Paper Making

Champion Fibre Co., Canton, N. C.

COMBATTING SOIL EROSION

SOIL erosion removes not less than 126,000,000,000 pounds of plant-food material from the fields and pastures of the United States every year according to estimates of the Department of Agriculture. This is more than 21 times the amount removed by crops, says the National Industrial Conference Board, and the annual financial loss to farmers is estimated at about $200,000,000.

The question of soil erosion has been receiving increasing attention. Explosives experts, during the past two years, have been studying the applications of explosives to soil erosion problems in the South. As a result of the investigations, it has been recommended that explosives be used in clearing stumps and boulders from areas terraced, and for ditching through lowlands to provide for the run-off of water.

That ditching has a definite place in soil erosion control is now generally recognized by agricultural authorities engaged in finding means to reduce annual damage running into the millions of dollars and which threatens, in many cases, to make entire sections unsuitable for farming. Engineers in charge of erosion control stress the fact that an adequate drainage system is a matter which demands the careful attention of the planter whose lands are in danger. In order to determine the proper location of ditches, careful study is made of the conditions in areas to be terraced. The terraced ditches should be dug, rather than blasted, according to the experts, though dynamite will save labor costs and time for ditching in lowlands beyond the terraces.

For effective terracing, it is necessary also to remove all stumps and boulders, as they interfere with the grading machinery. Small stumps can be removed readily with a stump puller or the so-called Paul Bunyon hammer, which nearly all farmers know how to make and for which instructions can be obtained from State agricultural colleges.

Larger stumps can be removed quickly and with little expense by means of dynamite, used in accordance with the advanced methods which have been developed within recent years by explosive experts. Every stump is a problem in itself, however. The age and kind of stump, nature of the soil, ground conditions, time of blasting, character of the root system, and the equipment available, must all be considered. State agricultural engineers and many county agents, however, have a wide knowledge of the application of explosives and can be of help in determining the proper placing and amount of dynamite to be used.

Mudcapping, snakeholing and blockholing are the three methods of ridding fields of rocks and boulders. In mudcapping, the dynamite is removed from the cartridge wrapper, packed in a compact, conical heap on the boulder and, after inserting cap, covered with the cartridge wrapper and several inches of thick, heavy mud. Blockholing consists of drilling a hole into the boulder and charging it with a small amount of dynamite; while snakeholing consists of making a trench under, but immediately against, the bottom of a boulder and placing the charge of explosives in a compact shape, tightly against the stone.

The Agricultural Extension Section of the du Pont Company devoted the January edition of its Ag-Ex News to soil erosion problems in the Southern States. Among the special articles are: Dynamite Halts the March to the Sea—C.C.C. units in the South blast down gully banks for erosion control; Vanishing Farmlands—sheet washing and gullying take tremendous toll from fertile acres; Types of Soil Washing and How to Combat Them; Blasting Gully Banks; Recommendations for Gully Control Work With Explosives; Construction of Check and Soil-Saving Dams Is Essential to a Complete Erosion Control Program; and Terracing Prevents Loss of Rich Topsoil.

In undertaking preventitive and corrective measures, it would seem obvious that good farming practice would not allow rows to be run up and down slopes which would increase the speed of the run off and start gullies. Yet that erroneous practice is largely responsible for badly eroded lands. Natural measures of erosion control include the use of trees and thick growing vegetation, strip cropping, rotation of soil covering crops and tillage methods that favor the absorption of water.

Two chief "mechanical" methods of

(*Continued on page* 50)

Effects of Soil Erosion
Gullies such as this carry away fertile soil but their advance can be checked with the aid of explosives to fill in and level off banks for planting grass and trees

Terracing Saves the Soil
A fine example of soil erosion control methods used in the Southwest

NEW BANKRUPTCY AMENDMENTS

By

Sol Weiss

Of the New Orleans Bar and Past President of the Commercial Law League of America

So pronounced became the agitation for drastic bankruptcy reform in 1931 that the Hoover Administration determined upon the passage of some form of amendatory bankruptcy measure. After elimination of many objectionable features in contemplated legislation, there were crowded through Congress during the last days of its session the latest Amendments to the Bankruptcy Act, under the title of "Chapter VIII" thereof. It is true that the bureaucratic features of the Bill had been eliminated, as had been the provision for suspended discharges; however, the measure as passed is unscientific, and bears every evidence of its hasty and slipshod preparation and enactment. The circumstance that the Bill was signed on March 3rd, 1933, the last day of the expiring Republican Administration, affords concrete evidence of the determination to enact what is designated as a "Bill for the Relief of Debtors."

"Chapter VIII" has been as ardently commended by adherants, as it has been roundly condemned by equally authoritative critics.

"Chapter VIII" represents the only material addition to the National Bankruptcy Act since 1898; all previous amendments constituted merely changes in phraseology, in words, or in paragraphs. The Amendments of March 3rd, 1933, add to the Bankruptcy Act, five new and distinct Sections, known as Sections 73, 74, 75, 76 and 77. The entire Chapter designated as "Chapter VIII" comprises these 5 new Sections, and the Chapter bears the captivating title of "Provisions for the Relief of Debtors," a denomination designed to appeal to the imagination and to enlist the sympathy and support of the general public. In truth and in fact, with the exception of the provisions providing for the re-organization of railroads and for the relief of farmers, there is little of a remedial nature in the new provisions which could not have been accomplished under the Bankruptcy Act prior to the Amendments. As a striking evidence of the ill-considered haste which marked the enactment of the legislation, I may here observe that the new Amendments, although providing for the relief of individuals, of farmers and of railroads, grant no relief to corporations, although it may well be assumed that the latter needed remedial legislation more than any other class of persons.

Briefly, the provisions of "Chapter VIII" are as follows: Section 73 covers in a general way the enactment of the succeeding Sections, creating the new jurisdiction for the relief of debtors.

Section 74 contains the provisions for the relief of individuals. It contains a broader definition of insolvency: including therein both the disparity between assets and liabilities, and also the inability to meet obligations as they mature: the latter provision is an expansion of pre-existing terminology. It stipulates the manner in which persons may arrange for liquidation of their debts either by way of compositions or by way of extensions. By compositions is meant a payment either in cash or in instalments of an amount less than the full amount of the indebtedness. By extensions is meant a postponement or amortization of debts over a period of time. It is generally believed for all practical purposes that both these arrangements were susceptible of accomplishment under the Act of 1898, as it stood prior to the 1933 Amendments. The Amendment requires the petitioner to be designated by the term "debtor" and not as a "bankrupt," unless adjudication ensue.

Section 74 permits a debtor by voluntary petition or by answer in an involuntary proceeding, to pray for relief; the Court must first approve the plea, as being formally correct and filed in good faith. Thereafter, the granting or rejection of the adjustment is by vote of the creditors, subject to confirmation by the Court. An excellent feature of the Section is the requirement that the first notice to creditors contain a summary of the debtor's assets and liabilities, a list of his secured creditors and of his fifteen largest unsecured creditors.

A new provision is contained in Section 74, and that is, the application thereof to secured debts. Under the Act of 1898, secured debts could be neither composed nor extended, nor were secured creditors heretofore entitled to vote. Now secured creditors may vote, if their claims are to be affected by the composition or extension. Under the Amendments, the amount of the secured claim cannot be reduced nor can the lien thereof be impaired, but the time, the mode and the method of payment are subject to regulation in extension proceedings.

Furthermore, an unusual benefit contained in Section 74 is the recognition of unliquidated claims as provable, especially and expressly a claim for future rent. Due to the unscientific phraseology of the Section, it is debatable whether a claim for future rent is provable in a composition, because the Act seems to provide that such claim is provable only in an extension proceeding under the Act. Authorities of equal competency disagree whether the applicability of this provision is restricted to one or extends to both of the proceedings mentioned, that is, compositions and/or extensions. Irrespective of whether the provability of a claim for future rent applies to one or to both of the remedies referred to, it is readily discernible that this unusual feature of bankruptcy cases is fraught with exceptional difficulties and is susceptible of unexpected developments.

Section 75 of "Chapter VIII" covers agricultural compositions and extensions; that is, stipulations for the relief of farmers. The provisions of this Section are difficult, impracticable and awkward, both in initiation and in application. Invoking the benefits of the Section is circumscribed with so many pre-requisites that its utilization in many cases is rendered problematical and ineffective. The requirement that 15 farmers in a particular geographical section must first petition for the appointment of a Concilliation Commissioner, after announcing their intention to avail themselves of the provisions of the Act, the authorization of the appointment of a supervision Conciliation Commissioner, and the various cumbersome incidents of the entire procedure render its adaptability of doubtful value.

As an evidence of the inutility of both Sections 74 and 75, it may be noted that neither of these remedial measures has been invoked in any substantial number of cases since the enactment of the Bill in March of this year.

The American Bankruptcy Reports, which publish all bankruptcy decisions by State or Federal Courts, disclose only two cases under the new Sections:— In re: Weissbaum (D. C. Cal.), decided March 31st, 1933, reported 23 A. B. R. 211; and In re: Aker (D. C. Idaho), decided June 22nd, 1933, reported 23 A. B. R. 105.

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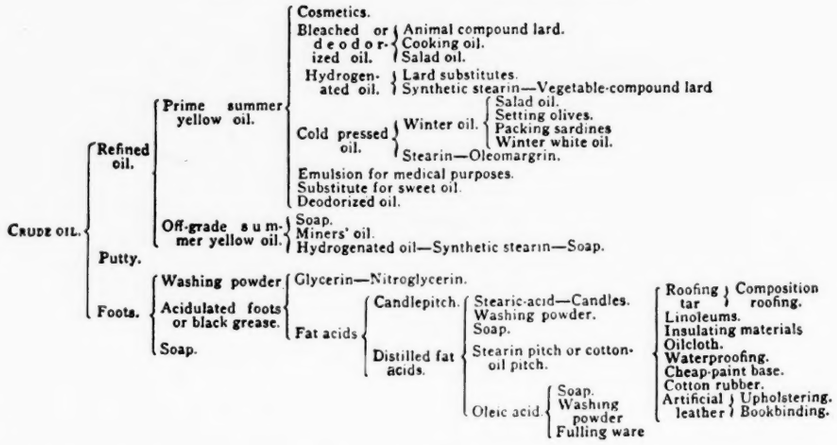
MAKING COTTONSEED OIL AND ITS PRODUCTS

By

J. B. Nealey

American Gas Association

Principal By-Products of Cottonseed

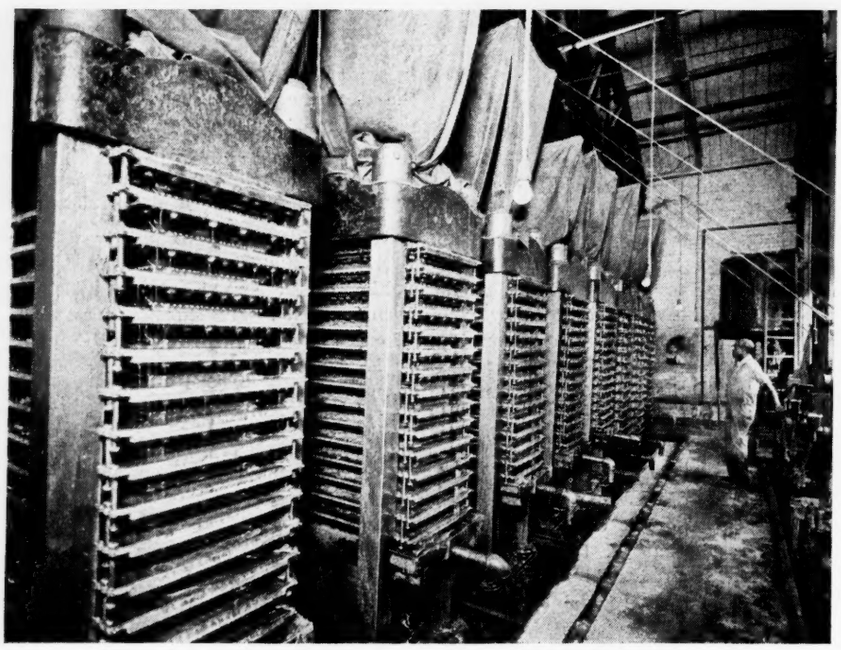


COTTONSEED oil has a great many divergent uses ranging from cooking oils to soaps and from cosmetics to high explosives and industrial and building products. The seeds are first separated from the cotton fibers by ginning and then crushed and pressed to liberate the oil. As the cottonseeds from the gin still retain a little cotton, this is removed as linters while the crushed seeds and hulls, after the oil has been extracted, are sold as cattle feed. The annual output of the cottonseed oil industry is valued at more than $100,000,000 under depression prices.

One of the country's largest cottonseed oil mills is that of the Trinity Cotton Oil Company, Dallas, Texas. The seed is unloaded at the plant direct from railroad cars by a novel system of lines and pulleys by which two drag scoop scrapers, one in each end of the car, pull the seeds out and dump them in a chute. In this manner a 40 ton car can be unloaded in 40 minutes. From here they are delivered to storage by means of a screw conveyor, a bucket elevator and a cut flight screw conveyor, the latter acting as an agitator and cleaner, the dirt falling through perforations in the retaining tubes.

Storage consists of a series of eight concrete bins each 50x100x45 feet high, the whole being 400 ft. long and 100 ft. wide. These are filled from overhead as described and the seed dropped as needed into a tunnel below which extends the entire 400 ft. In this tunnel is a 16 in. screw conveyor, also 400 ft. long, which delivers the seed to a bucket elevator distributing it among eight linter machines on the top floor of the mill building. These are similar to cotton gins except that the teeth on the circular saws are finer and closer together.

Pressing the Oil From Cotton Seeds in Hydraulic Presses



A system of flues with induced drafts sucks the linters out and forces them to a condenser, or slowly revolving drum, on which they collect and come off as an unending blanket the width of the drum. This product is known as the "first cut linters." The seeds are collected by a screw conveyor and carried to 16 more linter machines on the floor below, where any remaining linters are removed. These linters, known as the "second cut linters" also go to a condenser while the seed is returned to hullers or decortcator machines on the floor above where they are broken up and the hulls and kernals partly separated on shaker screens. Final separation of the product remaining on the screens is effected in beaters or revolving cylinder screens, the shafts of which are equipped with spikes that agitate and force the kernals through the perforations.

The continuous belts or blankets of linters from the condensers move continuously to baling presses on the floor below; the hulls are carried to storage or loading platform by screw conveyors and the kernals are dropped by gravity to rolls on the ground floor where they are crushed. This crushed product is then distributed, by elevators and screw conveyors, to five steam jacketed cookers ranging from 24 to 72 in. in diameter where it is cooked at 230-240 degrees F. for a period of 35 minutes. The cooked material is formed into cakes which are placed in presses and the oil pressed out.

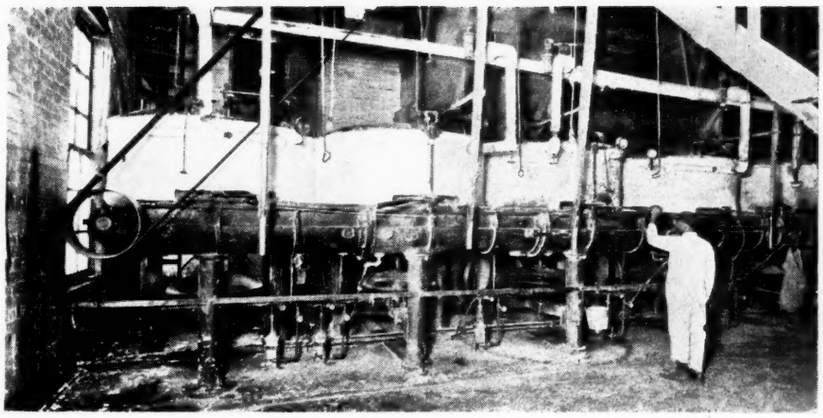
In forming the cakes they are wrapped in cloths and these cloths were originally made from camels hair and later of horse hair. Experiments are now being carried on with Mohair, made from the

hair of goats from Texas. The wrapped cakes are placed in hydraulic presses, eight in number, 15 cakes to a press and a pressure of 4,000 lbs. per sq. in. is applied. The cakes are 14x33 in. and after pressing are ¾ in. thick and weigh 14½ lbs. They are stripped from the cloths in a special machine and put into rotating cylinders with spikes on the inside to break them up.

Screw conveyors and bucket elevators take this material to storage and as it is removed it is screened, the finer material being bagged for cattle feed. The coarser material is ground, mixed with hulls and also bagged for cattle feed.

The oil is put through filter presses under pressure and pumped into storage tanks where it is pumped to the refinery to be refined.

The oil is received at the refinery in four 11,000 gal. tanks where a caustic soda solution is added by spraying and the whole thoroughly mixed by air that is forced in at the bottom. This agitation is stopped at the end of 30 or 40 minutes and the soap stock coagulates and settles to the bottom leaving the oil clear. The oil is removed, by syphons, to similar tanks. It is heated with steam coils and agitated by air in order to dry out any water held in suspension.

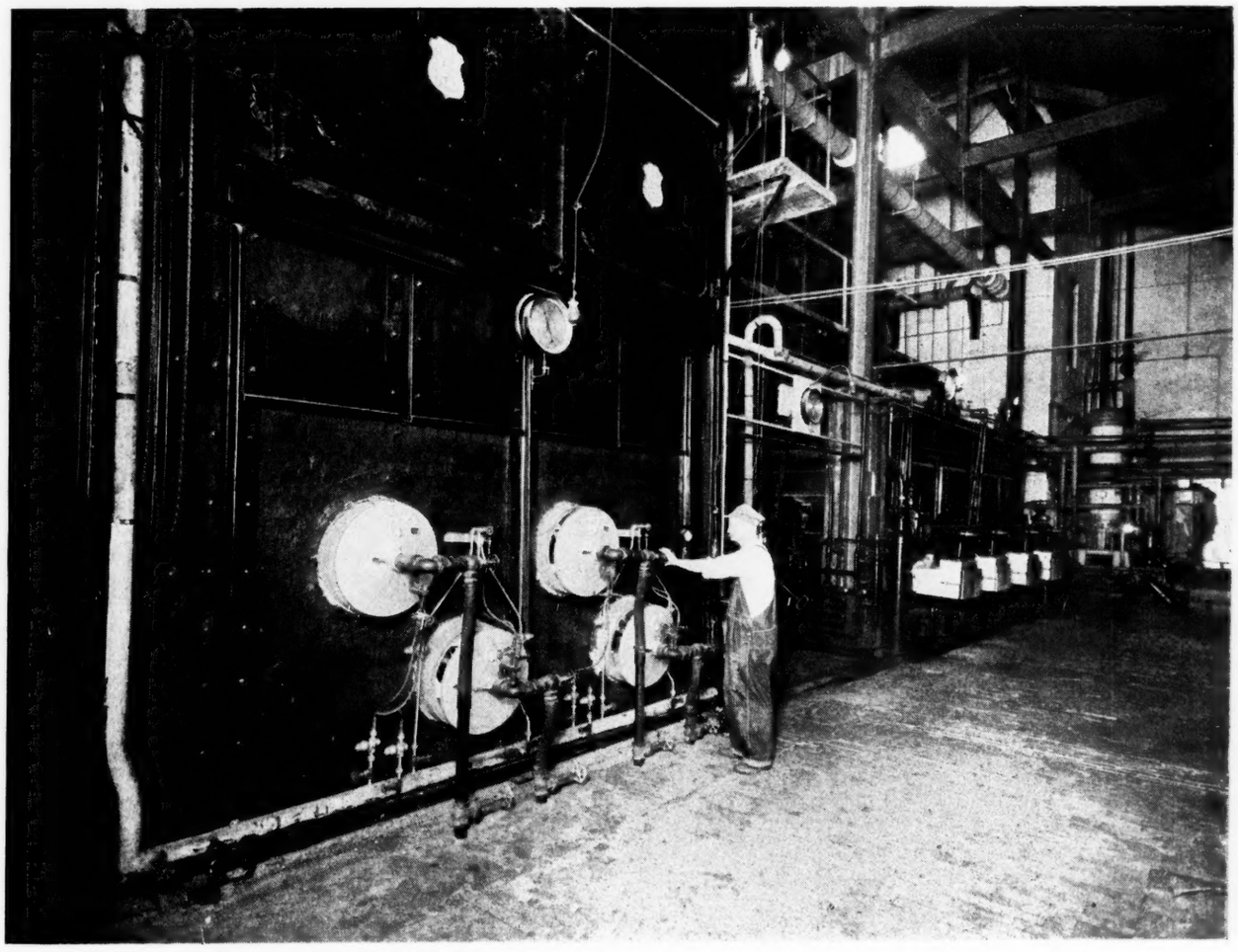


Cottonseed Cookers Using Steam From The Gas-Fired Boilers

After thoroughly refining the crude oil with caustic soda, the refined oil is known as Prime, Summer Yellow. This oil is afterwards refrigerated and winter-pressed or is bleached with Fuller's earth then treated under vacuum at high temperatures to produce the various grades of edible oils.

There are two power plants, one for the mill and the other for the refinery which adjoins the mill. The first contains two Heine boilers of 300 h.p. each while that serving the refinery has a 500 h.p. Heine and two 250 h.p. Cahill boilers. Gas is the fuel employed in both plants, the furnaces of the larger boilers being provided with four gas burners each and those of the smaller boilers with two each. The power plant at the mill has a 550 h.p. Lane and Bodley steam engine driving a series of main and jack shafts and utilizing the English type of rope transmission throughout. The power from the refinery unit is used in driving refrigerating machinery.

Steam Boilers Showing Two Types of Gas Burners



MODERNIZATION

REPLACEMENT of obsolete equipment and housing facilities for manufacturing and other business purposes is becoming an increasingly important factor in the construction field. More attention is being given to modernization programs. On this point, J. C. Knapp, vice-president of the Otis Elevator Company, says a decided shift in American building practices is anticipated as a radical change was taking place in the building thinking of architects who were counting the cost in the tearing down of old buildings and erecting new ones instead of modernizing present structures and conserving the capital invested.

Not all old structures can be modernized to advantage without excessive cost and waste, but where it is a case of securing additional servicing facilities or improving equipment much can be done at relatively low cost for the increased efficiency obtained. An elevator modernization job at the First National Bank Building, Richmond, Va., about a year ago, illustrates what can be accomplished in this direction. This building is owned jointly by the First and Merchants National Bank and the Chesapeake & Ohio Railroad Company. The entire building is used by the offices of the bank and the railroad company. It is eighteen stories high, and is located in the centre of the financial district. The bank occupies the first floor, and the railroad occupies the balance of the building.

The elevator equipment originally consisted of six gearless traction elevators which were installed in 1912. The duty of the machines is 2500 pounds at 500 feet per minute. The elevator doors are of the single speed type and manually operated at all floors except the basement and first floors which are power operated.

Elevator Modernization Job in First National Bank Building, Richmond, Va.

As the building is entirely owner occupied, it was not operated for a profit, but, nevertheless good elevator service was essential for efficient operation of the various departments of these companies. Owing to the type of tenancy, there were an exceptionally large number of employes in the building and a great deal of inter-floor traffic. This resulted in a severe strain on the elevator system, and many complaints were received by the building management from employes and officials. In order to obtain some relief, the starting and closing times of various departments were staggered, but even this was not sufficient.

Owing to the layout of the building it was impossible to install an additional elevator. The solution of the problem was worked out by the installation of Otis Signal Control Elevators with Micro Self Leveling and Unit Moltivoltage operation. The speed of the elevator was increased from 500 feet to 600 feet per minute. Scheduling devices were installed, together with new signal system. At the same time that this change was made, the elevator cars and hatchway entrances were also modernized by the installation of new doors and cars.

As a result of this complete change, the service was increased from 30 to 45 per cent. Complaints were completely eliminated, and employes are assured of prompt and regular service.

Power bills have been considerably reduced and one operator eliminated from the staff.

This arrangement gives the building service practically equivalent to the installation of an additional elevator.

The Ten Forsyth Street Building, Atlanta, has completed a comprehensive modernization job which included new store fronts, new elevator cars, removal of old elevator grille enclosures and replacement with marble facing, new flush type aluminum doors, door closers and protective interlocks.

Many major industries of the South, noticeably cotton mills, have been improving plant facilities and increasing efficiency of power plants. To adequately modernize industrial housing facilities, replace and improve machinery and equipment that have become obsolete or worn out will stimulate demand for capital goods and furnish manufacturers and servicing enterprises a volume of business that will require capacity operation to meet. Indications point to a realization of this activity in the near future.

COMPLETES NEW PIPE PLANT

Super-deLavaud Unit of the Bessemer, Ala., Plant of the United States Pipe and Foundry Company Placed in Operation.

THE United States Pipe and Foundry Company has recently completed the design and construction of a Super-deLavaud Unit at their Bessemer, Ala., Works. This unit, consisting of four 4″ to 12″ and one 14″ to 24″ Super-deLavaud machines for the manufacture of cast iron pipe with 18′ laying length, replaces a portion of a sand cast pipe turntable shop originally built in 1915.

The machines are supported on a rugged operating floor and under this floor is a basement of unusual height, having been necessary with the turntable for the original sand cast shop when it was in operation. The unusual height of this basement permitted of housing all of the piping systems and afforded excellent access to all parts of the five Super-deLavaud machines. The average layman in viewing the operation of the process does not always appreciate the many different piping systems required. These systems comprise air, steam, low and high pressure water.

For furnishing the necessary iron two 108″ cupolas, originally used for sand cast operation, have been rebuilt and provided with a forehearth to better condition the iron for the purpose intended. After the iron is drawn from the forehearth, it passes directly into the pouring ladles. These ladles are conveyed to the respective Super-deLavaud machines by means of an overhead traveling crane. This crane spans half the width of the building—the other half being spanned by a similar crane. The latter crane is used in taking the pipe, after being cast in the machines, from the machines and depositing them in front of the charging end of the annealing furnace.

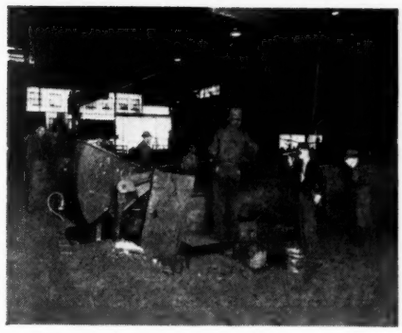
The socket core system includes ovens, sand handling equipment, blacking tables, etc. The sockets after being rammed at the tables are blackened and placed upon trays. They are then hauled by an electric lift truck to the ovens where they are baked. Upon removal from the ovens, the sockets are moved to the side of the Super-deLavaud machine, where they are ready for use.

An annealing furnace of modern design and with all necessary appurtenances has been installed in the new building. To accurately record the weight of all pipe cast, a scale is installed directly in front of the annealing furnace. The furnace is operated with gas as its fuel and is actuated through a system of thermo-couples, automatically, so that the variation in temperature at no time exceeds 20 degrees Fahrenheit.

After the pipe have been annealed, they pass through the various operations of cleaning, coating and testing. The most improved equipment has been installed for these different processes. After a final weighing, the pipe are transported to the storage yard or loaded for immediate shipment.

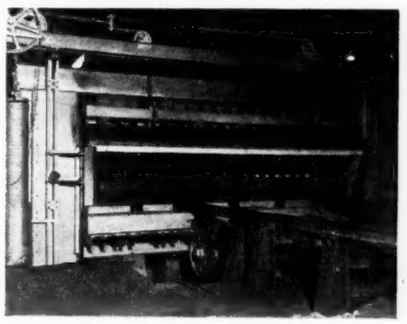
Since a considerable quantity of water is used in the operation of the Unit, a re-circulating system has been installed, which consists of a large pond equipped with spray nozzles, so that the water in the summer time can be readily cooled. This system is capable of distributing the water at either low or high pressure.

Throughout the complete operation of this new Super-deLavaud Unit many phases of the process are operated electrically and all such apparatus has been made as fool-proof as possible. Tracks for handling materials to and from the Unit, have been provided. Nothing has been left undone to make this new Super-deLavaud Unit an ideal one, both from the standpoint of quality first as well as straight line production.

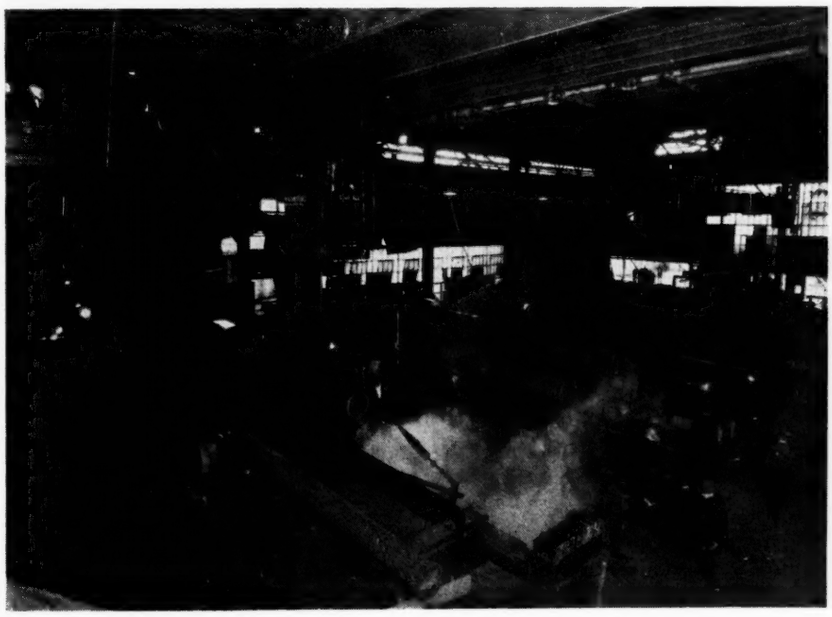


Casting of deLavaud Pipe

The annealing furnace and core ovens have been constructed by the R. & S. Products Company of Philadelphia. All structural steel work in connection with the improvement has been constructed by the Virginia Bridge and Iron Co. "Usicast" cast iron roof plates, a new product of the United States Pipe and Foundry Company, have been used in roofing the new Unit. The design of the entire Unit and the general supervision of construction has been accomplished by the Engineering Department of the Company.



Pipe Entering Annealing Oven



General View of Operating Floor

CONSTRUCTION GAINS IN SOUTH

$48,870,000 Awards in January Show 37 Per Cent Increase Over December and 155 Per Cent Above January, 1933

CONSTRUCTION activity received a great impetus in the Southern States during January. Contracts let for engineering, building and general construction projects, called for an expenditure of $48,870,000, as compared with $35,586,000 in December, 1933, and with $19,472,000 in January 1933 based on data assembled by the *Manufacturers Record Daily Construction Bulletin*. January contracts exceeded by more than 37 per cent the preceding month's total, and surpassed the total awards during the first month of 1933 by about 155 per cent.

Contracts to be awarded, regarding which preliminary announcements were made last month, aggregated $120,483,000. This amount has been exceeded but twice. The second high all-time record was established in September, 1933, when work planned and proposed had a total value of $178,700,000.

Nearly $20,000,000 for Roads and Streets

Considering the amount of money involved, road, street and paving work held the premier position among the major classifications, totaling $19,941,000, as compared with $16,451,000 in December. A high total for a 2-month period of the year when construction normally lags. Most of the Southern States are endeavoring to place under contract in the quickest possible time projects to be financed out of the $450,000,000 emergency road fund provided under the N.R.A.

Congress is considering an Act to provide $125,000 of Federal road money annually for the next two years beginning July 1, 1934. It provides funds for road building in national forests, parks, etc., and for a continuation of provisions of the Emergency Act permitting utilization of Federal funds in building feeder routes and city pavements, that are links in through-state highways.

Southern State highway departments are taking over increasing mileages of county and parish roads, thus centralizing construction and maintenance operations and effecting economies in operating costs that will ultimately make possible high type maintenance and the building of additional miles of roads.

Industrial and Engineering Work

Industrial and engineering projects which last month involved an expenditure of $13,985,000, stand second to road building. In the preceding month contracts were let for similar projects involving $10,496,000.

Levee, revetment and dike construction contracts last month were $5,834,000, as compared with $623,000 in December, 1933. The sharp increase in this line is the more outstanding when the heavy awards for such work in the fall of 1933 are recalled. It means that innumerable projects of a varied character will require an array of power tools of both special and standard types. In the field, work is provided for many types of skilled and unskilled labor, while in the widely scattered factories, engaged in the production of materials and machinery, and contractors plant machinery, skilled mechanics in numbers have been added to payrolls.

The program provides for the building of levees, larger in section than any previously built; for revetments of a new and improved type; for contraction works of an advanced design; and for the dredging of channels to facilitate navigation. Locks and dams to prevent floods and to aid navigation as well as for the production of electric power will be built. No less than three major railroad bridges are to be built across the floodway below the Bonnet Carré Spillway above New Orleans.

$4,639,000 for Sewers and Waterworks

A noteworthy increase in sewer and waterworks construction is indicated by January awards of $4,639,000, as compared with $1,742,000 in the preceding month. That lettings of this character will be heavy in the future is evidenced by the high total of $24,138,000 covering "contracts to be awarded" regarding which preliminary announcements were made in January. This is in line with the filing of numerous applications with the PWA in recent months by Southern towns and cities for grants and loans to cover such projects. In recent weeks Government agencies charged with the allocation of such funds have measurably speeded up routine operations, so that grants are being made in numbers, thus enabling Southern communities to promptly place under contract projects for which plans and specifications have been ready for a long time.

This class of work stimulates employment in all parts of the country since the jobs call for pumps, meters, tanks and towers, pipe and fittings, motors and building materials and machinery generally. At the same time, local unemployment relief is afforded.

$3,126,000 for Industrial Plants

Awards for new industrial plants and expansion programs of established enterprises during January aggregated $3,126,000, a significant total in that it is made up of a large number of small projects. This is taken to indicate a more healthy business condition generally. An improved outlook is revealed by the willingness of local and outside capital to invest funds in plant improvements.

$12,393,000 for Public Buildings

Public building construction last month called for an outlay of $12,393,000, as compared with $6,748,000, representing contracts let for like classes of structures in December, 1933.

The award of $2,551,000 of contracts covering general building projects represents a marked increase over awards of $1,891,000 for this classification during the preceding month. Included are apartments and hotels, association and fraternal structures, bank and office buildings, churches, dwellings and stores, so that it constitutes a good barometer of general business.

Dwelling contracts placed in January totaled $1,696,000, as compared with $965,000 in residential contracts let during December.

CONSTRUCTION ACTIVITY FOR JANUARY, 1934

	Contracts Awarded	Contracts to be Awarded
General Building		
Hotels	$260,000	$285,000
Apartments and Association and Fraternal	30,000	50,000
Bank and Office	100,000	100,000
Churches	186,000	75,000
Dwellings	1,696,000	8,965,000
Stores	279,000	240,000
	$2,551,000	$9,715,000
Public Buildings		
City, County, Government and State	$11,171,000	$9,081,000
Schools	1,222,000	20,445,000
	$12,393,000	$29,526,000
Roads, Streets and Paving	$19,941,000	$26,941,000
Industrial and Engineering Projects		
Dredging	$161,000	$6,848,000
Filling Stations, Garages, etc.	225,000	195,000
Industrial Plants	3,126,000	21,129,000
Levees, Revetments, Dikes, etc.	5,834,000	1,991,000
Sewers, Drainage and Waterworks	4,639,000	24,138,000
	$13,985,000	$54,301,000
Total	$48,870,000	$120,483,000

RECOVER RIGHT... with a Barrett ROOF

Sound value must be the foundation of recovery. There's no place in sound recovery for make-shift materials, workmanship or service.

Eighty years ago Barrett Roofs set new standards for roof protection, durability and economy. Eighty years of progress and improvement—in roofing materials, specifications and methods of application—have made Barrett the greatest name in roofing. For low cost per year, reroof and repair the Barrett way.

Leaking roofs cost thousands of dollars in damage every year—to ceilings, decorations and fixtures—to machinery and goods in storage or process of manufacture. Weather-proof Barrett Roofs, the best roof protection America has developed, cut building repair costs and eliminate interruptions to business.

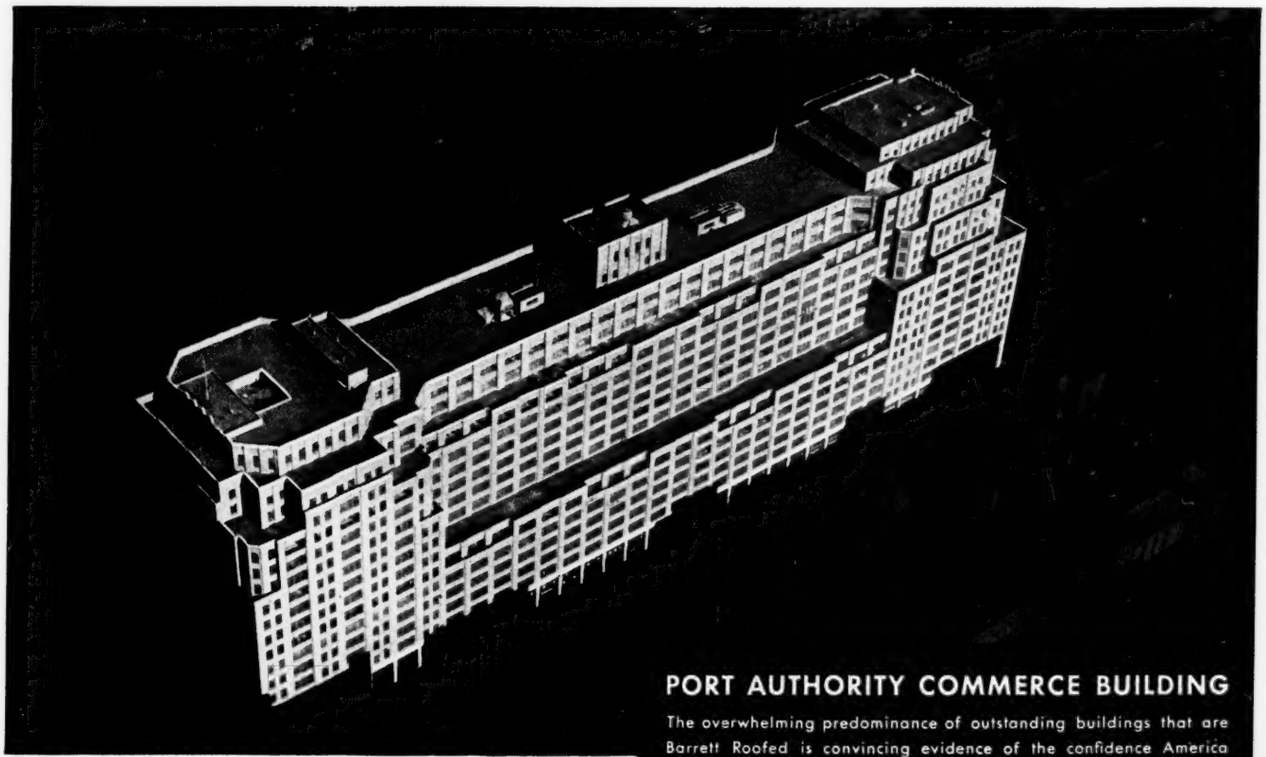
Know whether your roof is an asset or liability. Arrange for a Barrett Roof Inspection and report. A Barrett Roof Inspector will make a complete and searching examination of the condition of your roofs, and give you an expert, impartial report. This service is free, and it may save you thousands of dollars.

Your local Barrett Approved Roofer will gladly arrange a Barrett Roof Inspection, or write us.

THE BARRETT COMPANY, 40 Rector St., New York, N. Y.

In Canada

The Barrett Co., Ltd., 5551 St. Hubert St., Montreal, P. Q.



PORT AUTHORITY COMMERCE BUILDING

The overwhelming predominance of outstanding buildings that are Barrett Roofed is convincing evidence of the confidence America places in Barrett materials and methods. Pictured is the new Port Authority Commerce Building, NewYork, N.Y., "NewYork's largest building", which is protected with Barrett Waterproofing and 154,500 sq. ft. of Barrett Roofs. Owners: Port of New York Authority. Engineer-Architect: Abbott, Merkt and Company, Inc. Gen'l Cont.: Turner Construction Company. Roofer: The NewYork Roofing Company. All of NewYork City.

Barrett Between the World and the Weather since 1854

The Barrett Company manufactures a wide variety of protection products including the famous Barrett Specification Roofs and other Built-Up roofing materials; Barrett Asphalt Shingles and Roll Roofings; Barrett-Holt Roof Connections, Barrett Waterproofing, Sheathings and Building Papers, Barrett Protective Paints, etc.

IRON, STEEL AND METAL MARKET

LARGE orders placed for railroad cars, locomotives, miscellaneous equipment, rails and accessories, and the continuation of steady support from the automobile factories gave the steel industry a powerful stimulant at the beginning of the second month of this year.

Under this influence steel plants hastened to speed up production. Several mills promptly expanded operations and two, long closed, were made ready for reopening. This week the Mansfield (Ohio) plant of the Empire Sheet and Tin Plate Co. will have on its payrolls 1600 men—the largest total in years. In the Youngstown District production last week jumped five points to 45 per cent, with the lighting of additional open hearth furnaces by the Republic Steel Corporation.

While Ohio plants in particular have increased operations, largely as a result of new business from motor car producing centers, mills in other sections have been stimulated due to the revival of railroad buying. Equipment manufacturers received their first substantial orders in over three years. The Erie, Chesapeake & Ohio and the Nickel Plate —three Van Sweringen controlled lines —placed orders aggregating 12,775 cars. It is understood that the total expenditure by Van Sweringen roads for cars, locomotives and equipment, will involve $25,000,000, orders having been previously placed for 2975 cars to be supplied by the American Car & Foundry Co. and 15 freight engines by the American Locomotive Co. The New York, Chicago & St. Paul ordered 20 locomotives.

These equipment purchases, it is believed, mark the beginning of a long series of orders for rolling stock in line with the rising tendency of freight traffic. The last volume purchases by carriers were made late in 1929 and early in 1930. The new orders about equal the aggregate business booked by car builders during 1931, 1932 and 1933.

From 160,000 to 175,000 tons of steel will be required to build this equipment and it will therefore, be necessary for heavy steel mills to shortly step up operations appreciably.

The Southern Pacific Company ordered 40,000 tons of rails, dividing the business among several steel producers. The Chicago and Northwestern Railroad proposes to buy 25,000 tons of rails and 7,000 tons of fastenings. The Chicago, Milwaukee, St. Paul & Pacific is inquiring for 30 locomotives, and the Lehigh Valley is in the market for five.

Steel Earnings Improve

The United States Steel Corporation cut its 1932 deficit in half and showed an actual net from operations, in spite of the fact that the average price of finished products was $5.00 a ton below the preceding year, and wage rates at the end of 1933 were 24 per cent above the pre-code level. For the entire year 1933 the production of finished steel products was 29 per cent of capacity, as compared with 18 per cent in 1932. It is anticipated that the output will be substantially better this year.

Bethlehem Steel Corporation reported a profit for the first time since the middle of 1931, net income of $629,671 in the final quarter of 1933, comparing with a loss of $5,621,672 in the same quarter of 1932. Its total deficit for 1933 was $8,735,729 as contrasted with $19,404,431 in 1932. Average operations were 28 per cent of capacity, as compared with 16.9 per cent in the preceding year.

Bookings of structural steel during 1933 were approximately 5 per cent less than in 1932, while shipments were 12 per cent lower, the American Institute of Steel Construction reports. That the decline has temporarily stopped is indicated by the fact that December bookings were the best recorded for any month of 1933, being 39 per cent larger than for November.

Iron and Steel Exports Increase

Heavy shipments of scrap were largely responsible for the increase of more than 100 per cent in exports of iron and steel products during 1933 as compared with 1932. The total of 1,350,000 tons, as compared with 594,000 tons in 1932, was the heaviest recorded since 1930, the iron and steel division of the Department of Commerce reported.

Imports gained 10 per cent over 1932, being 417,000 tons as compared with 378,000 tons. Not since 1928 have imports shown an increase over the preceding year.

December exports trade reached the new high of 184,000 tons the heaviest shipments in any month since May 1930.

Pig Iron Output in January Gains

Pig iron production gained 2½ per cent in January. Total production of 1,222,000 tons, or about 39,400 tons daily, being the highest production since October and the best January total since 1931. During January 12 additional furnaces were placed in service, and since the beginning of February additional furnaces have been put into blast.

Steel Operations at New High Level

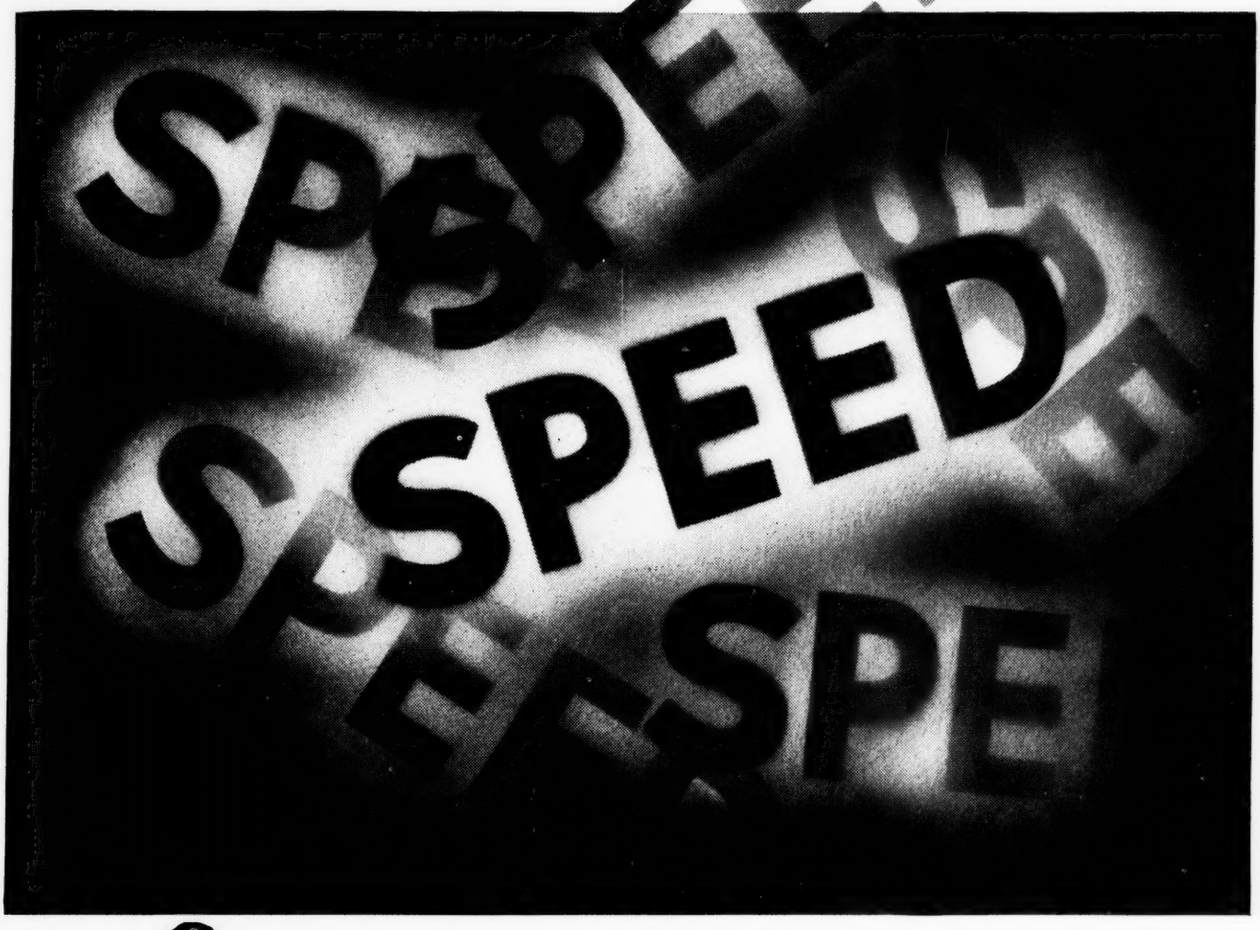
For the week beginning January 29, steel operations were at a rate of 34.4 per cent, according to figures compiled by the American Iron & Steel Institute. This is the highest rate reported since the Institute began publishing weekly figures on October 23, and represents a gain of 1.9 points in the rate and 5.8 per cent in the tonnage over the preceding week. At the beginning of January the rate was 29.3 per cent, so that the increase amounts to 5.1 points, or about 17 per cent. The low point in the weekly rate was established on November 6, 1933, at 25.2 per cent. The current indicated rate at the beginning of February represents an increase of 9.2 points, or about 36.5 per cent from this low figure of three months ago.

With indications that the buying of rails and structural steel will appreciably increase shortly, steel operations should move forward rapidly. Predictions are being made that the operating rate may reach 50 per cent before the end of the current quarter.

Already there is talk that sales of motor cars this year will be 40 per cent higher than in 1933. Difficulties with mechanical features of new models have slowed up the advance in motor car output at a time when manufacturers have orders on hand calling for more than 200,000 cars. The postponement of orders from week to week is in a measure compensated for by the prospect of a greater steel tonnage in the aggregate, since 1934 models are estimated to require 200 pounds more steel per car than the 1933 models.

With buying power mounting, miscellaneous consumers are expected to increase steel purchases. Refrigerator and washing machine makers are laying plans to boost sales above the 1933 level, when a creditable showing was made. Manufacturers of agricultural implements expect higher prices for farm products to give impetus to buying of their products. Producers of road building and general construction equipment anticipate that the continuation of public works in volume will stimulate their business. Machinery and mechanical equipment purchases are expected to increase in view of the provisions of the NRA. Manufacturers in all lines of endeavor, it is pointed out, may be expected to modernize their plants with a view to cutting production costs.

MEETING TODAY'S DEMAND FOR



"Here's an example of the way Teletypewriter Service helps us operate," says W. H. Kilpatrick, Vice President and General Manager of Chrysler Motors Parts Corporation. "This message was received here from our Los Angeles branch 15 minutes ago — 4 o'clock Detroit time. The part requested has already been boxed, and it will be delivered in Los Angeles via air express shortly after noon tomorrow! And this isn't an unusual case — it's every-day routine."

Speed is just one of the teletypewriter's many features . . . but a valuable one. It saves time for busy officials and other employees; changes days or hours to *minutes* in filling orders; provides the efficient service to customers which brings repeat business, in these days of low stocks and quick demands.

Teletypewriter Service lets you "talk in writing" . . . directly, promptly, accurately . . . either with other companies who subscribe to the service, or with separated offices of your own company.

An investigation of Teletypewriter Service will suggest to you the specific ways in which *your* company might benefit by this speedy and cost-cutting business aid. Users find that the *savings* it makes possible are more than enough to pay for the service. Your local Bell Company will gladly give you full information . . . and review your communication needs if you wish . . . at no obligation to yourself. Just call the Business Office, and a representative will visit you at your convenience.

In 1922 the United States Pipe and Foundry Company shipped the first length of de Lavaud centrifugally cast pipe commercially produced in the United States. By 1932 more than 80 million feet of de Lavaud pipe had been installed in the United States alone. Every length of those 80 million feet may be confidently expected to surpass, under equal conditions, the long-life records of cast iron pipe made a century ago. For de Lavaud pipe since the first shipment in 1922 has been stronger cast iron pipe than our best pit cast pipe. It has rightfully been considered ideal pipe for service underground.

Now we are ready to announce Super-de Lavaud Pipe

with impact-resistance increased 100 per cent

IT will be recognized that the hazard of incipient rupture in the handling of pipe in transit, unloading and distributing is beyond the control of the manufacturer.

In 1930, the United States Pipe and Foundry Company undertook the self-imposed task of reducing that hazard in the only way possible—by increasing the impact-resistance of the pipe and at the same time maintaining a sound balance between modulus of elasticity and modulus of rupture. In that year of depression, we built and equipped one of the finest foundry research laboratories in the world.

In 1932, we began to produce at our Burlington plant, and later at other plants, a Super-de Lavaud Cast Iron Pipe, centrifugally cast, by a new patented process developed in our Research Laboratory. The outstanding feature of this new pipe is an extraordinary increase in impact-resistance.

For thirteen months we have been in production. During this time all our centrifugally cast pipe has been made by the new Super-de Lavaud process. After a year's experience in production and shipments we are now ready to announce that:

SUPER-DE LAVAUD CAST IRON PIPE, centrifugally cast by our patented improved process, is *shatter-proofed* to the extent that *impact-resistance has been increased more than 100 per cent.* Thus, maximum protection against hazards of handling and transporting has been built into Super-de Lavaud Pipe in order that pipe which is perfect *for service underground* shall remain perfect *from plant to underground.* While the human element in handling pipe is always unpredictable, it now becomes a negligible factor under any but abnormal conditions in transit, unloading and laying.

The major advantage resulting from the extraordinary increase in the impact-resistance of Super-de Lavaud Pipe is in protection against the hazard of damage in handling and transit but it must be obvious that this pipe will render super-service underground. Super-de Lavaud Pipe establishes a standard of its own exceeding the requirements of the Federal Specifications Board for this product. *Send for descriptive booklet.*

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICES . . . . BURLINGTON, N. J.
FOUNDRIES AND SALES OFFICES THROUGHOUT THE UNITED STATES

GOOD ROADS AND MOTOR TRANSPORT

Progress on Public Works Highways

Emergency construction of public works highways under the supervision of the United States Bureau of Public Roads, of the Department of Agriculture up to January 20 covered a total of 5,614 projects estimated to cost $289,958,000, for which bids had been invited or upon which construction had been started by day labor employed directly by highway authorities. The cost of day labor projects included in the above estimate is placed at $20,651,000. Of 4,852 projects awarded for construction, 3,140 were under construction on January 20 and 544 were completed. Construction under way, estimated to cost $181,996,000, was giving employment to 133,169 men. Work advertised for contract throughout the country or started by day labor employed directly by the highway authorities covered 67.6 per cent of the $400,000,000 provided for public works highways under the National Industrial Recovery Act.

Construction has actually been undertaken in the last six months under the Federal Public Works appropriation on a road mileage sufficient to build six great transcontinental highways across the United States, said Thos. H. MacDonald, Chief of the Bureau of Public Roads, U. S. Department of Agriculture.

"For those who desire a wide highway from coast to coast, if the six lines equivalent to the last six months of nation-wide road building were brought together in one great highway, construction would now be under way to provide a surfacing upwards of 110 feet wide on a roadbed about 200 feet wide over a right of way 400 feet wide," declared Mr. MacDonald.

The work has not been concentrated upon a single line or class of highways, but has been so distributed that it reaches into nearly every county of every State. Mileage includes secondary or farm roads, as well as municipal streets which are important parts of main highway routes.

Summarizing the work undertaken to the end of 1933 on public works highways by the States under the supervision of the Bureau of Public Roads, which covers two-thirds of the program, Mr. MacDonald reported a total of 17,647 miles of construction at a cost of $273,849,184. Of this mileage, 9,822 miles are on Federal-aid system outside of municipalities, 964 miles are extension of such roads into and through cities, and 6,861 miles are secondary or feeder roads. The mileage, by types of construction, is as follows:

Type	Miles
Graded and drained	4,149
Sand clay, treated and untreated	1,128
Gravel, treated and untreated	6,291
Macadam, treated and untreated	442
Low-cost bituminous mix	1,801
Bituminous macadam	461
Bituminous concrete	706
Portland cement concrete	2,521
Block	63
2431 bridges and approaches	72
159 railroad-highway and between-highway grade separations	13

While being carried on generally in accord with existing Federal-aid highway legislation, the Public Works road building program has been modified by incorporating a number of new principles, according to Mr. MacDonald, such as the payment for railroad grade crossing eliminations, thereby relieving the railroads of expense heretofore required by State laws, discouragement of State purchase of Portland cement for highway building, extension of main highways through cities, improvement of secondary roads, and the landscaping of more adequate highway rights-of-way.

Motor Coaches for Charleston

Replacing electric railway cars, five new General Motors motor coaches, each with a capacity for 20 passengers, were placed in service during January by the South Carolina Power Co., Charleston.

The bodies of the new carriers are of the all-metal type, a combination of steel and aluminum forming the structural parts. Length of each is 19 feet 10 inches, width 84 inches.

A 76-horsepower engine comprises the driving power. Standard 8.25-20-inch heavy duty balloon tires are used. The coaches were built by the General Motors Truck Co., Pontiac, Mich.

Type of Bus Being Operated

Kentucky Highway Commission Would Tax Oils and Greases

The Kentucky State Highway Commission recently adopted resolutions urging the enactment of a law to tax lubricating oils and greases and opposing any reduction in income except a cut in the price of automobile licenses and a diversion of part of the ad valorem taxes. The proposed tax on lubricating oil would be 2 cents a quart and on greases 1 cent a pound. A reduction of 25 per cent in the price of automobile licenses would be acceptable to the Commission, according to the resolutions, but any further diversion or reduction of income would not be in the public interest.

Anticipating the progress of road construction in Kentucky during the next two years, the Commission declared it was necessary to consider the fixed expenditures and the amount of revenues appropriated to the road fund for the next biennial period. During this period, from April 1, 1934, to March 31, 1936, the Commission will have more than 6670 miles of roads to maintain, it is stated, at an estimated cost of $12,750,000, while the total expenditures for the period would be about $17,400,000. Should existing road revenue laws remain unchanged, it is estimated that there would be approximately $7,090,000 for road construction in the two-year period.

Improved Black Top Paver

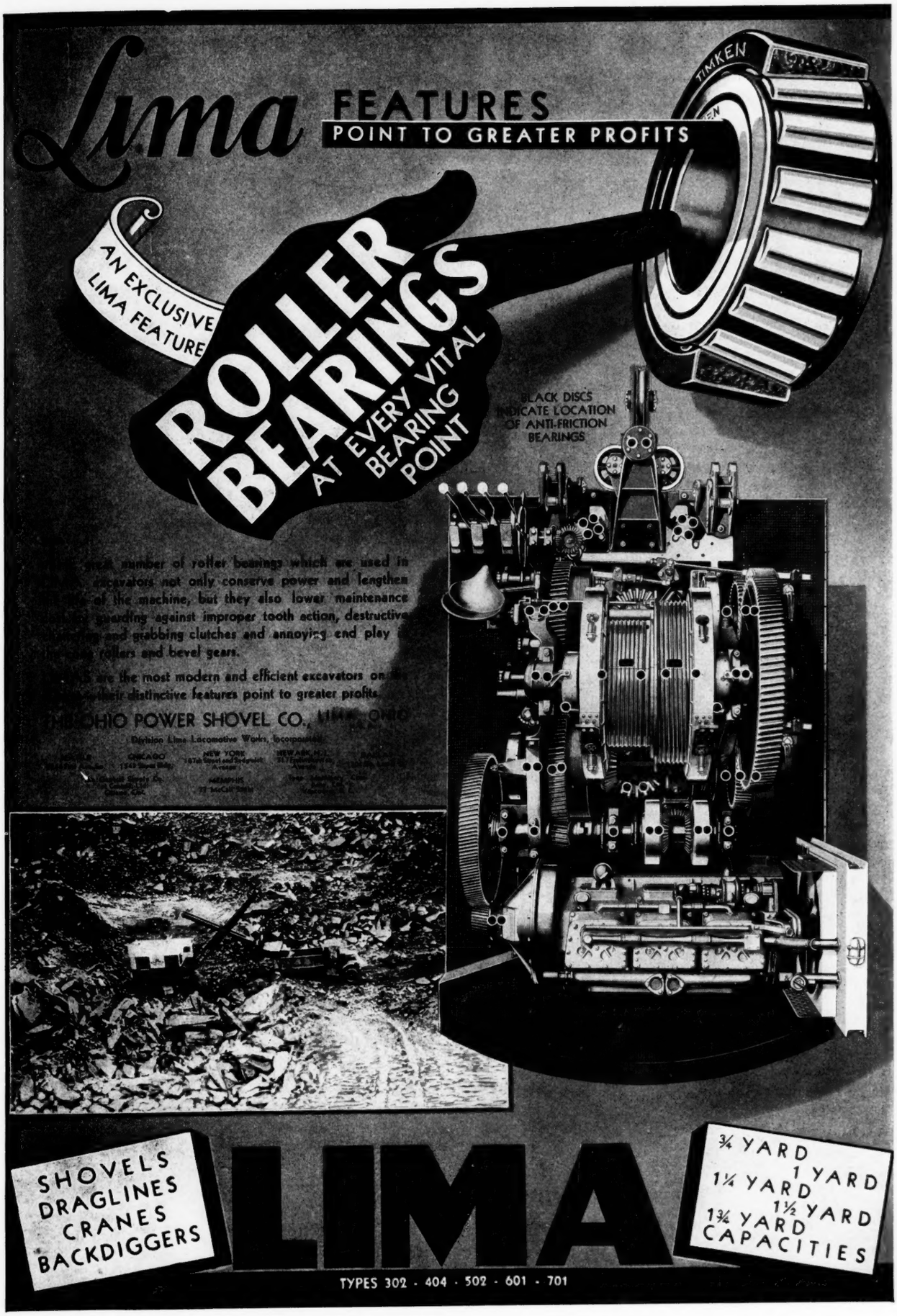
The Adnun Engineering and Manufacturing Company, Nunda, N. Y., announces an improved black top paver, offering many advantages in handling hot or cold mixes and providing an accuracy not possible to obtain by hand. The paver is self-propelled and rolls on the sub-grade and finished course. Consisting of a hopper mounted on a sturdy frame carrying an operating platform, engine and attendant mechanism, the machine is supported on the front end by two wheels that are engine-driven and steered from the platform, and on the rear end on four rollers, also powered and controlled for steering. An agitator bar at the bottom of the hopper draws the material down to the grade where it is cut off by a moving cutter bar. The machine lays pavement of any width or thickness; requires no forms, needs no preparation of shoulders, and will lay pavement up to the road edge.

Lima FEATURES
POINT TO GREATER PROFITS

AN EXCLUSIVE LIMA FEATURE

ROLLER BEARINGS AT EVERY VITAL BEARING POINT

BLACK DISCS INDICATE LOCATION OF ANTI-FRICTION BEARINGS



...great number of roller bearings which are used in ... excavators not only conserve power and lengthen ... of the machine, but they also lower maintenance ... guarding against improper tooth action, destructive ... and grabbing clutches and annoying end play ... rollers and bevel gears.

... are the most modern and efficient excavators on ... their distinctive features point to greater profits.

THE OHIO POWER SHOVEL CO., LIMA, OHIO
Division Lima Locomotive Works, Incorporated

CHICAGO 1343 Rand Bldg. | NEW YORK 17 Battery Place | NEWARK, N. J. 511 Commerce Bldg.

SHOVELS
DRAGLINES
CRANES
BACKDIGGERS

LIMA

¾ YARD
1 YARD
1¼ YARD
1½ YARD
1¾ YARD
CAPACITIES

TYPES 302 - 404 - 502 - 601 - 701

EQUIPMENT NEW AND IMPROVED

Vertical Compressors

Designed particularly for greater savings in air compressor costs, a new line of vertical compressors has been announced by the Gardner-Denver Company, Quincy, Ill., pioneers in the manufacture of high-speed vertical water-cooled compressors. In the new compressors, inlet and discharge valves are cushioned, making them silent, durable and efficient, while extra large water jackets completely surround the cylinders and valves, insuring minimum cylinder temperatures. A water-cooled inter-cooler saves power and increases volumetric efficiency by cooling between stages. Crankshafts are of large diameter forged steel, supported by three main bearings of the bronze-backed babbitt-lined full circle type. A rotary pump assures constant and uniform oil pressure to all bearings.

Northwest Adds Dragline Bucket

Upon the assumption that light buckets may be used in easy digging, producing a higher output and greater profits, the Northwest Engineering Company, Chicago, has designed a new dragline bucket, as a part of their line, to increase working ranges and output in earth excavation. Of light weight construction, with a large mouth, this new bucket is built in three sizes—54, 67½ and 81 cubic feet capacities, struck measure. Although of lighter weight and having a wider mouth, it embodies the well known heat treated Northwest Arch, which is made of heavy I-beam section to withstand the shock of being dropped on the nose. It is claimed that the severest work imposed upon a bucket will not close the arch. The lip is of rolled alloy steel, which is also toughened by heat treating.

New Light Weight Bucket

Steam Turbine Driven Fuel Oil Pump

The DeLaval Steam Turbine Company, Trenton, N. J., has introduced a small rotary displacement pumping unit for oil—fuel or lubricating—consisting of a De Laval-IMO pump set with the shaft vertical and driven through a worm reduction gear by a high speed turbine, the casing of which is mounted on the gear casing. While this type of pump is directly connected in some cases to electric motors or to steam turbines and is adapted to run at ordinary turbine speeds, the use of the speed reducing gear makes it possible to combine good steam economy with the simplicity and low cost of a velocity stage turbine with only one pressure stage, greatly reducing steam consumption.

Hydro-Shift Vertical Turret Lathe

In the development of machine tools during the past few years, flexibility has been emphasized more and more for the purpose of more nearly meeting customer requirements. Based upon these considerations, the Bullard Company, of Bridgeport, Conn., has introduced the Hydro-Shift Vertical Turret Lathe in sizes of 56, 66, 76 and 86 inches. These new units not only retain outstanding features of Bullard vertical construction, but embody features of more complete flexibility, accessibility and ease of operation, designed "to bring out the possibilities of a new phase in cutting time between cuts."

Crankless Diesel Engine

Shown for the first time at the recent National Motor Boat Show at Grand Central Palace, New York, a crankless Diesel engine manufactured by the Sterling Engine Company, Buffalo, N. Y., is designed for many fields of application. Charles A. Criqui, president of the Sterling Engine Company, stated that his company had been experimenting with it for 20 months and had been testing models since June 1 before going into production on it. Built horizontally and of compact construction, the engine is light in weight and small in size, of 2 cycle design, operates on the lowest grade of fuel oil. Its compactness is obtained in part by the absence of crankshafts, camshafts, cylinder heads, valves and cylinder head gaskets. The plant is adaptable for buses, rail trains, airplanes, marine and stationary uses.

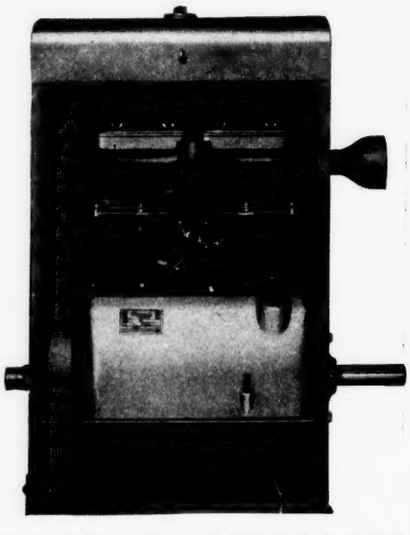
Electric Dumbwaiter

Warner Elevator Manufacturing Company, of Cincinnati, Ohio, announces a new development—an undercounter electric dumbwaiter—which utilizes waste space and keeps surplus stock out of sight and at the same time brings the basement nearer the selling floor. It is automatically controlled by push buttons at each landing and so arranged that the car may be sent from either floor to the other floor. The unit has a capacity of 300 pounds and is adaptable for use in restaurants, stores, hotels, clubs and other places where counters are used.

Heavy-Duty Air-Cooled Engine

Because of singular success with its single cylinder heavy-duty air-cooled engine and a demand for air-cooled engines of greater horsepower, the Wisconsin Motor Corporation, of Milwaukee, Wis., has introduced a heavy-duty, 4-cylinder, air-cooled engine of 6 to 16 horsepower capacity. It is known as model "AC4" and has a 2⅝-inch bore and 3¼-inch stroke, with a piston displacement of 70.35 cubic inches. The engine develops 10 horsepower at 1350 RPM, 12 horsepower at 1600 RPM and peaks at 16 horsepower at 2600 RPM. An outstanding feature is its light weight, the engine with accessories weighing only 215 pounds and the complete unit, with house, gas tank, etc., only 265 pounds. The unit has been designed particularly for heavy-duty service in the industrial, agricultural and automotive fields.

"AC4" Air-Cooled Engine



POWER AT THE BLADE

The only power you ever *see*, in a road grader at work, is the bite of the blade into the earth. You cannot *see* the drawbar h.p. delivered by the tractor, and how it is often dissipated through the members of the machine. But you can see, on examination of an Austin Grader, how carefully drawbar pull is carried in a most direct line and therefore with fullest possible effect, to the blade. And, what's easier still, you can *see the difference in results* when an Austin Grader is put on the job in comparison with another. Let us point out to you how design alone can cut your power costs and get work done better and faster. Send the coupon below.

NRA WE DO OUR PART

The Austin-Western Road Machinery Co
Home Office: 400 N. Michigan Ave., Chicago
BRANCHES IN PRINCIPAL CITIES

Austin-Western

ROAD ROLLERS, CRUSHING & SCREENING PLANTS, SCARIFIERS, SWEEPERS & SPRINKLERS, ROAD GRADERS, ELEVATING GRADERS, MOTOR GRADERS, DRAGS, SHOVELS, WAGONS,

The Austin-Western Road Machinery Co.
400 N. Michigan Ave., A3, Chicago, Ill.
Send me complete information on the new 8' ☐, 10' ☐, 11' ☐, or 12' ☐ Austin Grader.

Name _____
Address _____ State _____
City _____

Cletrac Tractors
Sold and serviced in this territory by Austin-Western

MORE POWER UNDER BETTER CONTROL

CLETRAC DIESEL 80 CRAWLER TRACTORS

The Cletrac 80 is the most powerful automotive unit made. Any comparison on this point is welcomed. The drawbar pull of nearly ten tons is uninterrupted power, too, for Controlled Differential Steering means no braking on one side to pull the other around. Turning in a radius of only 9 feet is accomplished by slowing one track and increasing the speed of the other — both always under power and control. A score of other superior features. Send the coupon.

THE AUSTIN-WESTERN ROAD MACHINERY CO.
Home Office: 400 N. Michigan Ave., Chicago, Ill.
BRANCHES IN PRINCIPAL CITIES

NRA WE DO OUR PART

Austin-Western

ROAD ROLLERS, CRUSHING & SCREENING PLANTS, SCARIFIERS, SWEEPERS & SPRINKLERS, ROAD GRADERS, ELEVATING GRADERS, MOTOR GRADERS, DRAGS, SHOVELS, WAGONS,

The Austin-Western Road Machinery Co.
400 N. Michigan Ave., A3, Chicago, Ill.
Please send me details on Cletrac Diesel "80" ☐, Gas "80" ☐, "55" ☐, "35" ☐, "25" ☐, "20-C" ☐.

Name _____
Address _____ State _____
City _____

Cletrac Tractors
Sold and serviced in this territory by Austin-Western

Looking Ahead

Business conditions are gradually improving. In some lines they are pronouncedly better. Unfilled demand is growing and the needs of industry must be met. Modernization of plants is one of the requirements of present day cost conditions.

Adequate banking connections are also essential.

•

Baltimore Commercial Bank
GWYNN CROWTHER, President
Baltimore, Maryland
Member Federal Reserve System

Electric Bond and Share Company

Two Rector Street
New York

FINANCIAL NEWS

A Comparison of Debts

The sums the Government is paying out to restore prosperity, with the resulting increase in the national debt naturally cause grave concern. In comparison, however, with the total debt of Great Britain, to which the Baltimore Evening Sun calls attention, it will be seen that the figures on the other side of the water are much higher per capita. Great Britain owes $38,000,000,000, figuring $5 to the Pound. This, with a population of 45,000,000 means a per capita debt of $844. Counting 120,000,000 as the population of this country and allowing that our debt will reach $32,000,000,000 before the New Deal is finished, the amount per capita will be $266.

It is further pointed out that in 1928 the total income of the United Kingdom was $14,250,000,000, while in the United States for the same year the income was $82,400,000,000. On a per capita basis, this means $316 for the United Kingdom and $686 for the United States. In 1933, the income of the American people dropped below $50,000,000,000, or approximately $400 per capita.

New R.F.C. Fund

The further operation of the R.F.C. is authorized by a bill passed by the Senate and House granting continuance until February 1, 1935, or until such prior date as may be fixed by the President. Its lending power is increased by another $850,000,000. The question of authorizing direct loans to small industries was sidetracked in the House, where many amendments were waiting to be introduced.

Farm Loans

There has come to the relief of the farmers of the country since the passage of the Emergency Farm Mortgage Act, in the form of money lent them, approximately $270,000,000. It is being borrowed to pay taxes, mortgage creditors, storekeepers and banks. The Farm Credit Administration says that applications in the last eight months amounted to more than 500,000. There is an appraisal force employed at present of over 5,000 men and loans were being granted during January at the rate of $5,000,000 per day.

Mutual Savings Banks

Mutual savings bank depositors increased in numbers last year by 144,583. This brought the grand total of depositors to more than 13,413,000, or within 20,000 of the record number for all time. Total deposits amount to $9,594,000,000 and total assets $10,856,000,000.

Deposit Insurance

It is evident from the expressions heard at annual meetings of the banks held in the early part of January, that there will be some decided opinions given to Congress about the Federal Deposit Insurance plan.

A great many banks are in favor of maintaining the present guarantee applying to small deposits, but do not want the permanent plan for deposit insurance to go into effect. Some of the larger banks have even considered the possibility of withdrawing from the Federal Reserve System if the permanent plan to become effective July 1st is not changed.

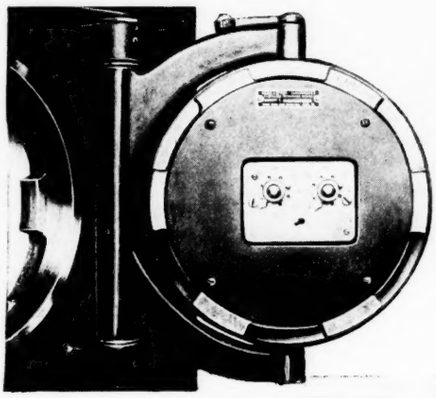
The point is made that the $2500 guarantee covers 97 per cent of all commercial bank depositors from the point of number, but that the very large deposits amounting to about one-third of the total deposits, come mainly from depositors able to protect themselves and they do not require the pro-

(*Continued on page* 34)

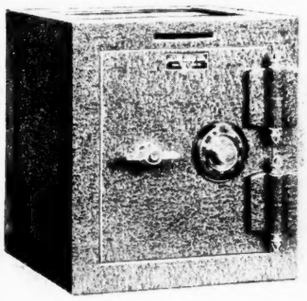
YOUR BANK

needs this

HOLD-UP PROTECTION



Delayed Action Combination Time Lock winds, sets and operates the same as the time lock on a large vault door.



York Day-Raid Lockers; built in two sizes.

Bankers' Day-Raid Unit; combined burglary and robbery protection.

York patented Portable Hold-Up Partition can be installed in any round or square door chest your bank may now be using.

Because **they eliminate successful hold-ups and discourage the activities of bandits.**

Banks **in all parts of the United States are buying York built protective devices equipped with a *Delayed Action Combination Time Lock.***

Write for complete information

NRA MEMBER U.S. WE DO OUR PART

YORK SAFE AND LOCK CO.

• YORK, PENNSYLVANIA •

MANUFACTURERS AND BUILDERS OF THE WORLD'S GREATEST VAULTS

NEW YORK
BALTIMORE
BOSTON
PHILADELPHIA
SEATTLE

POTTSVILLE
ST. LOUIS
SAN FRANCISCO
NEW HAVEN
HOUSTON
CHICAGO

YORK VAULTS

DETROIT
CLEVELAND
WASHINGTON
LOS ANGELES
PITTSBURGH
MONTREAL

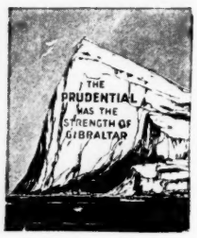
HONOLULU
PARIS
HAVANA
TOKYO
SHANGHAI

FIRE AND BURGLAR PROOF SAFES AND CHESTS

It strengthens the organization

GROUP LIFE INSURANCE

Employers are invited to ask for details of our latest plans. No obligation.



THE PRUDENTIAL
INSURANCE COMPANY OF AMERICA
EDWARD D. DUFFIELD, President
HOME OFFICE, NEWARK, N. J.

Deposit Insurance

(*Continued from page 32*)

tection that may well be accorded to smaller depositors.

Another point is the insurance charges that may be made, which are unlimited in amount. The Federal Deposit Insurance Corporation reports that there are approximately 54,000,000 individual bank accounts now protected up to $2500 each by the temporary insurance fund. These accounts are in 13,431 banks in every section of the United States. Only 141 banks did not qualify.

Not a Commodity Dollar

Secretary Morgenthau is reported to have declared that the Administration's monetary plans do not include a commodity dollar. The profit which will accrue from the increased dollar value of the gold supply, now held by the Treasury, the Secretary said would not be used in connection with the financing to be carried on by the Government in the next few months. The attitude of investors with the dollar valued at 59.06 cents in terms of gold is still to be determined.

With all this in mind, however, the country has taken reassurance from the evident intention to express values of currency in terms of gold.

When the President signed the Gold Reserve Act of 1934, a new milestone in the monetary and gold policy of the United States was reached. Under the Act, the right and title to all gold coin and gold bullion held by the Federal Reserve System was passed to and vested in the United States, and in payment therefor, credits in equivalent amounts in dollars were established in the United States Treasury. With this transaction completed, revaluation of the gold at $35 an ounce held by the Treasury was established by Presidential proclamation.

More than $3,000,000,000 in so-called gold certificates are being prepared in denominations of from $10,000 to $100,000 by the Bureau of Printing and Engraving. They will be used to pay the Federal Reserve banks for the gold coin and bullion taken over by the Treasury and are "legal tender in the amount stated for all debts and dues, public and private." The new certificates will not be paid on demand for gold, except for certain specified purposes, such as the settlement of foreign trade balances.

Texas State Banks

The Texas Commissioner of Banking reports that out of more than 500 State banks only 13 were forced to close last year, and the affairs of eight of the closed banks were arranged so that the depositors suffered no loss.

Dollar Decline Helps Foreign Debtors

Fewer foreign issues are said to be held by American banks this year. Notes and acceptances of German banks and German concerns in the portfolios of many banks in this country have been materially reduced during the past year. Largely owing to the decline of the dollar in the world's exchange centers, some foreign debtors have taken opportunity to liquidate their obligation to American banks.

Also, with the dollar at a discount abroad in terms of foreign exchange, foreign governments are in a position to take advantage of the situation if they will and make war debt payments to us at a material saving.

Bank Liquidity

One reason that industry has been unable to freely secure bank loans is that the banks have continued to maintain a high state of liquidity. Some of the great banking institutions of the country which have heretofore been the source of industry's requirements to meet operating expansion costs are still reporting over 83 per cent liquidity to total deposits and over 98 per cent liquidity to demand deposits. Such a condition freezes credit sources no matter how urgent may be the demand for loans.

ONE OF A SERIES—"THIS IS THE ASSOCIATED SYSTEM"

"DOCTORS, LAWYERS, MERCHANTS, CHIEFS"

Associated System security holders are not a small group of men hidden in the financial canyons of New York. They are 350,000 persons of high and low degree living not only in every state of this country, but in 31 countries overseas.

Registered security holders number 253,000, almost half of whom are customers residing in areas which the Associated System serves. Occupations of security holders, estimated for the entire group upon the basis of the number found in city directories follows:

Manual laborers	44,997
Teachers, doctors, lawyers, etc.	25,733
Clerks and bookkeepers	21,616
Supervisors	20,439
Storekeepers and proprietors	18,675
Salesmen and agents	9,999
*Trust institutions	9,229
*Women, unclassified	106,000

**From records of Associated Gas & Electric System. Most of the women are housewives, although the classifications above include women to a limited extent.*

The Plan of Rearrangement of Debt Capitalization was devised to preserve the Associated System intact, and thus to protect the investments of these people who have placed their savings in Associated securities. Debenture holders are urged to deposit their debentures immediately under the Plan, and to urge similar action upon others who have not yet exchanged their debentures. It is to the interest of all Associated security holders that the Plan be successful.

Associated Gas and Electric Company

61 Broadway, New York

JEFFERSON STANDARD LIFE INSURANCE COMPANY

27TH ANNUAL STATEMENT

December 31, 1933

ASSETS		LIABILITIES	
Cash	$ 1,331,040	**Policy Reserves** — This amount represents the reserve required by law to assure prompt payment of policy obligations.	$49,735,474
Mortgage Loans — Farm property $659,204, on city property $16,542,882. These loans were made on a basis not to exceed 50% of a conservative valuation.	17,202,086	**Reserve For Policy Claims** — Claims in course of settlement on which proofs have not been received.	468,630
Bonds and Stocks — Bonds carried on amortized basis. Listed securities at market values of December 31, 1933.	7,746,629	**Reserve For Taxes**	205,000
Real Estate — This includes our seventeen-story Home Office Building.	8,062,357	**Premiums and Interest Paid In Advance**	444,238
Loans to Our Policyholders — Fully secured by the cash values of their policies.	13,717,637	**Dividends Left At Interest**	509,173
Premium Notes and Liens — Secured by cash values of policies.	4,556,901	**Reserve For All Other Liabilities** — Medical and inspection fees, bills not yet presented, etc.	36,630
Interest Due and Accrued	831,619	**Dividends For Policyholders**	573,167
Net Premiums In Course of Collection	1,799,187	**Special Reserve** — A fund to take care of depreciation on real estate and investment fluctuations.	900,000
All Other Assets	274,856	**Total**	$52,872,312
		Capital and Surplus — These funds are an additional guarantee to meet all obligations.	2,650,000
Total Admitted Assets	$55,522,312	**Total**	$55,522,312

SOME INTERESTING FACTS ABOUT 1933 OPERATIONS

New Insurance Issued (Paid-For Basis)	$ 36,456,800
Insurance In Force	308,810,832
Payments to Policyholders and Beneficiaries In 1933	9,187,166
Total Payments to Policyholders and Beneficiaries Since Organization	74,290,686
Ratio of Actual to Expected Mortality In 1933	57%
Interest Earned On Total Invested Assets In 1933	5.5%
Actual Interest Collections On Mortgage Loans In 1933 Averaged	6%
Actual Interest Paid In 1933 On Funds Held In Trust	5%

JEFFERSON STANDARD LIFE INSURANCE COMPANY

JULIAN PRICE, President — GREENSBORO, North Carolina

A Jefferson Standard Policy Is a Declaration of Independence For the Family

A 5-ton INGOT... or a 5-penny NAIL

WHATEVER your steel needs, you can fill them with greater satisfaction from GULFSTEEL—the South's largest independent manufacturer of finished steel products.

Complete control of every manufacturing operation at one big plant, enables us to maintain the high standard of *quality* and *uniformity* that has made GULFSTEEL products famous.

Send us your inquiries.

GULF STATES STEEL COMPANY

BIRMINGHAM, ALABAMA

GULFSTEEL

NRA MEMBER U.S. WE DO OUR PART

OVER THE EDITOR'S DESK

REAL ESTATE MEN point to the increasing attention being given to real estate by investors as one of the encouraging signs of recovery. Real estate, while not the earliest, perhaps, is usually among the first to respond to improving conditions after a period of depression. Likewise, tremendous booms in real estate heretofore have presaged business collapse.

Man's desire to possess land in his own right is inherent and probably present day low prices for real estate are not likely to obtain again for years. All over the South there are many opportunities for wise investment in this direction. Farm lands and town property have descended to figures that would have been regarded as impossible a few years ago. With the advances in business, of which we are seeing the early signs, conservative buyers are turning their attention toward the Southern States for factory sites and homes.

PROFESSOR CRAVEN of the Duke University School of Law, sees more than a possibility of government ownership of railroads "because of the difficulty in reorganizing conditions so that private ownership can survive." He calls attention to what is described as "the greatest mistake in the past regulation of railroads" in trying to have regulation for what was regarded as a monopoly and at the same time demanding competition.

It is not believed that the public or even the labor unions want government ownership. Our experience with government operation following the war was not a happy one. It still remains to work out the problem of having free and independent carriers, which have contributed so much to America's development, earn money enough to make a profit for their stockholders and give service which wise management would like to give.

TOTAL OPERATING RECEIPTS of American railroads in 1932 were $3,126,760,000. Total operating expenditures amounted to $2,800,016,000 including such major items as $1,436,842,000 for salaries and wages, $168,601,000 for locomotive fuel, $539,051,000 for materials and supplies, $275,135,000 for taxes, etc. Addition of total fixed charges, interest, etc., of $619,431,000 left a net corporate deficit of $139,203,000 for 1932.

A NEW ORANGE is announced from Florida. The Jacksonville Times-Union in reporting it says it does not ripen until February and is of large size, with a thin skin.

The Florida citrus crop has been a blessing to America for many years. One wonders how the world ever got along without its grapefruit.

The Valencia orange so far has been the late orange, with the advantage of remaining on the tree until ready to pluck in the early spring, and there is none more palatable. Other fruit must be taken from the trees and kept in cold storage until the market requires it. There should be a waiting demand for the new discovery, which will add to Florida's wealth.

Visitors are in Florida this month in larger numbers than for several years.

SLUM CLEARANCE AND MODEL HOUSING plans are properly receiving a large share of attention. The Metropolitan Housing Corporation of London, whose representative is in this country at the present time studying our plans for similar work, owns a large amount of property in the East end of London, housing 30,000 people. This is property that has been converted and made suitable for present day require-

ments. The properties have been bought from private owners and improved.

The Corporation has earned 12 per cent and paid dividends of 8 per cent on common shares.

The average rent paid by tenants is, in American currency, around $3.35 per week. The lowest rent is $2.00 a week and the highest $5.25 a week. The price varies according to the improvements.

This one corporation has under construction six blocks of apartment houses at the present time.

A recent experiment in New York along similar lines met with a discouraging result when run-down property was bought for improvement. The tenants who were to be charged a higher rent for improvements to provide better living conditions were either uninterested or could not stand the raise, which they regarded as too much, as they moved to unimproved homes elsewhere. Perhaps the improvements planned were too elaborate.

Nevertheless, there is no subject deserving of constructive thought on the part of public officials from the standpoint of beautification of our cities and the healthfulness of the population, than the clearing up of sore spots that have been neglected over many years.

THE DICTIONARY DEFINITION of "adsorption" is "a condensation of gases on the surfaces of solids." The Aluminum Company of America manufactures Activated Alumina, which is a commercial adsorbent with characteristics that make it suitable for many uses in industry. For example, it can be used to dehumidify and condition the atmosphere of storerooms and warehouses. It is employed to advantage in the storage of sheet steel, which is subject to corrosion and surface deterioration in moist atmospheres. Where desirable, room climates may be adjusted to practically any desired condition of dryness or moisture content according to the requirements of the product that is being stored or manufactured.

Probably the largest eventual market for a product of this kind will come about through the adoption of air conditioning in homes. The time is fast approaching when our houses will have scientifically adjusted atmospheric conditions that will make people healthier and happier. The scientifically heated and cooled home presents an ideal that engineers believe will be brought within the income of the average American family in the next few years.

THE DEPENDENCE OF GREAT CITIES upon the farmer has never been more pointedly apparent than in the Chicago milk blockade. It was necessary to call airplanes into service to bring milk from distant points. Hotels and restaurants had to go on milk rations and many consumers had to do without their daily supply.

The Charleston News and Courier, in commenting on this situation, says "it points to the great city's utter dependence on farmers."

Food is gathered from widespread areas. Any prolonged breakdown of transportation would be disastrous. Cities like New York, Chicago, or Philadelphia draw their food supplies from coast to coast.

While the farmer is recognized as such a prime factor in our existence, he has been far from receiving a just reward for the work he does. Even the thriftiest of farmers has had a hard time of it during recent years. He is coming now, however, into a better day.

AUTOMOBILE SHOWS in Eastern cities so far this year report admissions surpassing considerably the totals of last year while cash sales on the floor materially passed those of twelve months ago. One manufacturer in the higher priced class reported the sale of 260 cars at the New York Show, which was an increase of 40 per cent over 1933 figure.

SHEET METAL?

SEE THE ARMCO DISTRIBUTOR

MANY SOUTHERN manufacturers make it a practice to deal with a nearby ARMCO Distributor whenever they need sheet metal or light plates. Quite often orders are placed one day and deliveries made the next—from well-rounded stocks of galvanized INGOT IRON, galvanized ARMCO Steel, hot-rolled sheets, and other frequently-used grades, in a wide range of sizes and gages.

Not only is it convenient to order sheet metal from the ARMCO Distributor but it is safe, sure and reliable. He believes in offering good iron and steel, else he would not be selling ARMCO Products. Give him your order by telephone or letter when next you need sheet metal. Or, if you have a special problem, call him in for discussion. We shall be glad to send you his name and address.

THE AMERICAN ROLLING MILL COMPANY

Executive Offices: MIDDLETOWN, OHIO

ARMCO means
GOOD IRON AND STEEL

INDUSTRIAL NEWS

General Sales Manager

The Grinnell Company, Inc., Providence, R. I., manufacturers of sprinklers, valves and fittings, announce the promotion of Howard P. Conway, Charlotte, N. C., Southern sales manager of the company, to general sales manager with headquarters at Providence. No announcement has been made regarding a successor to Mr. Conway.

Electric Carriage Typewriter

At the touch of a key on the new Burroughs Electric Carriage Typewriter, a built-in motor returns the carriage to the starting position, or to an intermediate point, and spaces to the next writing line. Shifting for capitals is also electric. With these movements of the carriage controlled from the keyboard, typists are saved thousands of needless motions daily, with the result that typing is faster and easier. The machine is manufactured by the Burroughs Adding Machine Company, Detroit, Mich.

Research on Frits and Enameling

An industrial fellowship in the Mellon Institute of Industrial Research, Pittsburgh, Pa., has been founded by the O. Hommel Company of that city for the purpose of conducting scientific research on problems of enamel technology. This Fellowship will acquire such technical information as will enable it to serve as a "clearing-house of dependable facts regarding frits and their industrial use." Research of the Fellowship will be published for the benefit of enamelers, advice and information on enameling, and assistance in solving plant problems and in making evaluations or other practical tests of frits will be extended gratis to companies desiring such technical aid.

E. M. Gilbert Engineering Corporation

The name of W. S. Barstow and Company, Inc., Reading, Pa., has been changed to the E. M. Gilbert Engineering Corporation. The corporation will continue its same policies, personnel, business and management. In 1916 E. M. Gilbert became vice-president and chief engineer of W. S. Barstow and Company and in 1929 he was elected president. The company, organized in 1906, has not only acted as engineers and constructors for new utility power plants and transmission systems, but has also acted in a general consulting capacity in a wide variety of construction and operating problems. During the past five years it has provided engineering service and supervised construction involving utility company expenditures of approximately $80,000,000. Among outstanding power projects which it engineered and built is the Saluda River hydro-electric development near Columbia, S. C., which involved the construction of the largest earth dam in the world for power purposes.

Asbestos Companies Merge

President A. S. Blagden of the Ambler Asbestos Shingle and Sheathing Company and the Keasbey and Mattison Company, both of Ambler, Pa., recently announced the merger of those two companies under the latter name, and the acquisition of a controlling interest by Turner and Newall, Ltd., of Great Britain. Keasbey and Mattison Company for more than 60 years has been a principal manufacturer of magnesia and asbestos products of all kinds, with factories at Ambler and St. Louis, manufacturing a wide line of asbestos-cement products. Turner and Newall, Ltd., and its subsidiaries are large factors in the asbestos and magnesia industry.

Armstrong Star Drills

Armstrong Bros., Tool Company, Chicago, have added Armstrong Star Drills to their extensive line of Armstrong tools, drop forged from special high carbon chisel steel, hardened and tempered to hold their sharpness, and the shanks are of adequate stiffness to prevent bending. They are made in 8-, 12-, 18-, and 24-inch lengths, and in diameters from ¼-inch to 1-inch by sixteenth inches; large diameters from 1 inch to 1½ inches by eights in 12-, 18-, and 24-inch lengths.

Manager Byers Houston Office

J. B. Durkee has been appointed manager of the Houston (Texas) office of A. M. Byers Company, Pittsburgh, Pa., manufacturers of wrought iron products. He succeeds H. B. Weathersby, deceased.

Reo Announces Management Changes

The Reo Motor Company, Lansing, Mich., recently announced that Richard H. Scott, president and general manager, has relinquished the last named position and that R. E. Olds, who for the past several years has been chairman of the board, becomes chairman also of the executive committee, which has active direction of the corporation. Ray DeVlieg, for many years manager of several plants of the Chrysler Corporation and more recently assistant to the president of the Reo Motor Company, becomes works manager of the company in charge of factory operations. The naming of Mr. Olds as chairman of the executive committee marks his return to active participation in the motor car industry, from which he practically retired several years ago.

(Continued on page 40)

Why—

are so many people visiting

FLORIDA

this season?

There's a reason --
Come and see for yourself

For tourist or agricultural literature of the East Coast of Florida, Write

Model Land Company

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GALVANIZED STEEL SHEETS

- Coporiole Copper Bearing Galvanized Steel Sheets
- Corrugated and Formed Roofing Materials
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Liberal stocks of galvanized products are maintained at all times.

Write for our new Differential and Extra Booklet

THE EASTERN ROLLING MILL CO.
BALTIMORE—MARYLAND

AMERICAN STEEL SHEETS

FOR ALL KNOWN USES

KEYSTONE COPPER STEEL — AMERICAN SHEET AND TIN PLATE COMPANY — PITTSBURGH

In Industry and Construction

Use sheets of recognized reputation and value. For roofing, siding, gutters, spouting, air conditioning systems, and general sheet metal work — Keystone Copper Steel *gives maximum rust resistance.*

Insist upon AMERICAN Black Sheets, Keystone Rust Resisting Copper Steel Sheets, Apollo Best Bloom Galvanized Sheets, Galvannealed Sheets, Heavy-Coated Galvanized Sheets, Formed Roofing and Siding Products, Tin Plates, Terne Plates, Black Plate, Etc.

Write us relative to your sheet steel requirements. This Company also manufactures U S S STAINLESS and Heat Resisting Steel Sheets and Light Plates for all purposes.

AMERICAN SHEET AND TIN PLATE COMPANY, Pittsburgh, Pa.

SUBSIDIARY of UNITED STATES STEEL CORPORATION

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Structural Steel and Ornamental Iron
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Capactiy 1000 Tons per Month. 3000 Tons in Stock

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The Largest Steel Fabricators in the Carolinas

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Laboratory Guidance
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Billets ~ Plates ~ Sheets ~ Flanged and Dished Heads ~ Floor Plates ~ Stampings

IN STANDARD AND SPECIAL ANALYSES

CENTRAL IRON & STEEL COMPANY...HARRISBURG, PA.

INDUSTRIAL NEWS

(Continued from page 38)

Hercules Powder Earnings Up

Net earnings of the Hercules Powder Company, Wilmington, Del., amounted to $2,363,055 in 1933 as compared with $889,762 for 1932. It is the first time since 1929 that earnings have exceeded dividend payments. The regular 7 per cent dividend on preferred stock was paid and there remained $2.79 per share applicable to the common stock of which $2.25 per share, were paid on the common stock during 1933.

Central Iron and Steel Appointments

Central Iron & Steel Company, Harrisburg, Pa., has appointed Theodore Geissmann & Co., Inc., 180 Michigan avenue, Chicago, as district sales agents for the states of Illinois and Indiana, with some territory excepted; Wisconsin, Minnesota; Missouri, except St. Louis, and the City of Omaha, Nebr. Announcement was made also of the appointment of Potter & Dugan, Inc., Court and Wilkinson streets, Buffalo, N. Y., as district sales managers for the state of New York west of Schenectady, and for the cities of Erie and Bradford, Pa.

New Hays Corporation Representatives

The Hays Corporation, Michigan City, Ind., manufacturers of gauges, recorders, thermometers, hydrometers, furnace coverings, gas analysis apparatus, etc., has appointed the following new representatives: T. C. Messplay, 2219 E. 69th Terrace, Kansas City, Mo., for the state of Kansas and Western Missouri; Leinart Engineering Company, 427 Walnut Street, Knoxville, Tenn., for Eastern Tennessee; Fairman B. Lee, 114 Railroad Avenue South, Seattle, Wash., for the state of Washington; Engineering Sales Company, Meyer Building, Holland, Mich., for Western Michigan.

Du Pont Increased Volume Of Business And Earnings

Activities of E. I. du Pont de Nemours & Company, Wilmington, Del., are reviewed in detail in the company's annual report for 1933 which shows earnings applicable to common stock of $32,921,253, or $3.00 a share on an average of 10,983,379 shares outstanding. This compares with earnings of $19,769,394 for 1932, or $1.82 a share on an average of 10,867,678 shares outstanding. Figures in both instances include the company's equity in undivided profits or losses of controlled companies not consolidated. Net income from operations in 1933 amounted to $24,358,201, compared with $10,354,134 in 1932, while the company's volume of business expressed in dollar sales for the year 1933 was 24 per cent greater than in 1932. The diversity of products manufactured by the company makes it impossible to compare accurately the volume of business as a whole on a tonnage basis. An increase in tonnage, however, is said to account for practically the entire increase in dollar volume.

Total assets of the company are $695,631,064, in which is included $154,500,000 representing the company's permanent investment in 10,000,000 shares of General Motors Corporation common stock. During the year approximately $1,800,000 was expended for chemical control and $4,000,000 for improvements in existing processes and products and the development of additions to established lines and of new products. An expenditure of $11,500,000 was made for plant extension and modernization. The company's surplus at the end of the year was $170,345,234.

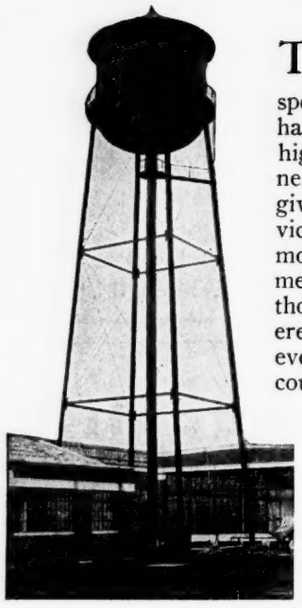
The Yellow Strand.—This official publication of the Broderick and Bascom Rope Company, St. Louis, for January-February, contains a feature article on the use of "Pre-Flex" Preformed Yellow Strand Rope, a Broderick and Bascom product, at the Kleer Mine of the Morton Salt Company at Grand Saline, Texas.

Jeffrey Bulletins.—The Jeffrey Manufacturing Company, Columbus, Ohio, has issued bulletin No. 568 illustrating the Jeffrey Green Garbage Grinder, described as embodying a new and economical method of green garbage disposal. The Jeffrey-Traylor Division of the company has issued the following: Bulletin 579, devoted to Electric Vibrating Screens; Bulletin 581, to Electric Vibrating Conveyors; Bulletin 582, to Electric Vibrating Feeders, and Bulletin 583, to Electric Vibrating Cooler-Dryers.

Proper Size Truck Tires.—The B. F. Goodrich Rubber Company, Akron, Ohio, has issued a booklet entitled, "A Practical Guide for Tire Combinations on 1½ Ton Trucks." The publication includes a table to be used as a Changeover Guide for 1½ Ton Trucks, giving the payload in pounds, tire size, rim size and dual spacing in inches for both the 131 and 157 inch wheel base. It also illustrates the application of single tires, proper dual spacing, and dual installations.

(Continued on page 42)

COLE



TANKS and towers designed to meet any special requirement. They have been developed to a high state of effectiveness and are designed to give uninterrupted service. They embody the most revised requirements of insurance authorities and have been erected in practically every section of the country.

We also specialize in Fuel Oil Storage Tanks, Oil and Water Storage Tanks, Acid Tanks, Vats, Chemical Tanks, Storage Bins, Stacks, and other forms of Steel Plate Construction.

R. D. COLE MANUFACTURING CO.
Established 1854
NEWNAN, GA.
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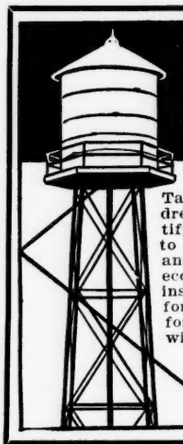
5 Beekman St.

DAVIS CYPRESS WATER TANKS

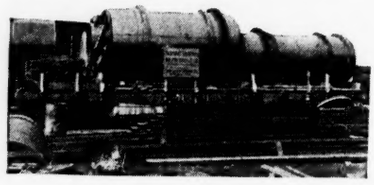


It's no unusual fact for a Davis Tank to last 25 to 35 years, as hundreds of southern industrial plants can testify. Cypress need only be outside-painted to last indefinitely; keeps water cool and sweet, and when Davis-built represents a major economy in equipment cost, either inside or outside the plant. Ask for estimates — any size, shape, for any purpose. Our new catalog will also be mailed on request.

DAVIS CYPRESS TANKS

G. M. DAVIS & SON
P. O. Box 5
Palatka, Fla.

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment.

Write us for information and quotations.

CHATTANOOGA BOILER & TANK CO.
CHATTANOOGA, TENN.

ELEVATED TANK

Saves 25% OF FUEL COST

SEVERAL years ago the City of Murfreesboro, Tenn. made improvements in its waterworks system including the installation of a 500,000-gal. elevated tank. Since that time the City has been able to save 25 percent in fuel cost over direct pumping, due to shutting down the pumping equipment a portion of the day and letting the tank provide the pressure in the system during that time.

Adequate elevated storage enables a waterworks department to operate its pumping equipment in an economical manner. This is done by operating each unit at a rate which will produce the highest efficiency and then shutting it down entirely.

All the water pumped in excess of that used goes into the elevated storage and flows back into the system when required, without repumping. The energy required to pump it originally is not wasted.

Write our nearest office for information regarding the use of elevated storage in your waterworks.

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Birmingham .....1530 Fiftieth St. North	New York .....3113 Hudson Terminal Bldg.	Philadelphia .....1619-1700 Walnut St.
Dallas .....1208 Burt Bldg.	Cleveland .....2216 Rockefeller Bldg.	Detroit .....1510 Lafayette Bldg.
Houston .....2919 Main Street	Chicago .....2106 Old Colony Bldg.	Boston .....1510 Consolidated Gas Bldg.
Tulsa .....1611 Thompson Bldg.	San Francisco .....1040 Rialto Bldg.	Havana .....Edificio Abreu 402

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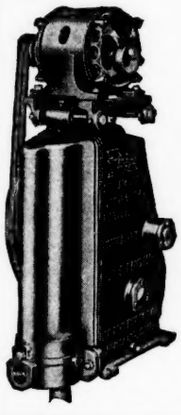
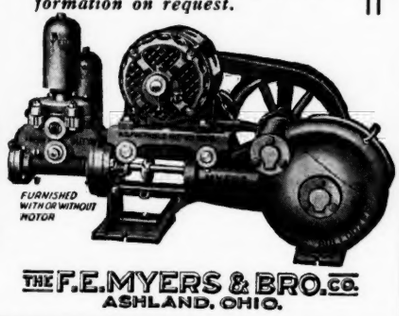
MYERS

POWER PUMPS

Today, when buyers are extremely critical, Myers Self-Oiling Power Pumps and Water Systems offer greater values than ever. Considering the completeness of the Myers line, its outstanding quality, its wide adaptability, its favorable low prices—its possibilities for economy and dependable service are so apparent that more and more users the world over are recognizing Myers superiority and are taking advantage of it through improved power water facilities for home, farm or factory. It will pay anyone who is interested in new pumping equipment to thoroughly investigate the Myers line of Hand and Power Pumps for every purpose.

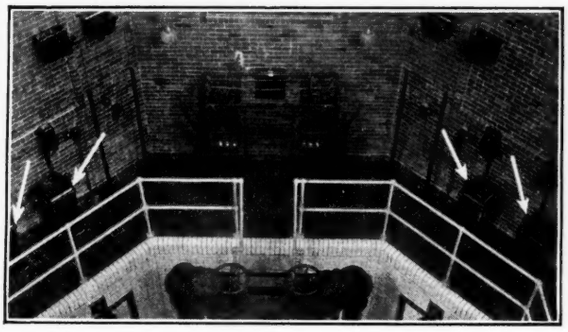
New Catalog and complete information on request.





THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO.

EC&M MOTOR STARTERS



and Sewage Disposal Plants

EC&M Automatic Motor Starters are particularly well suited for use in sewage disposal plants and systems because of their ability to operate successfully and with extremely low up-keep cost under the adverse conditions of moisture and corrosion ever present in these plants.

In the London, Ont. sewage pumping station (above) these 4 EC&M Starters have given dependable performance for over 11 years at a repair part cost of only 50 cents per starter per year. Mail the coupon for bulletins describing these efficient starters.

THE ELECTRIC CONTROLLER & MFG. CO.
2700 East 79th Street, Cleveland, Ohio M. R. 2-34

Gentlemen:
Please send Bulletins describing EC&M Automatic Motor Starters for use in Sewage Plants with.....Volts (a.c. or d.c.) motors.

Name ..... Company.....

Address .....

INDUSTRIAL NEWS

(Continued from page 40)

Employes' Representation Plan.—In view of widespread interest in relationships between management and employes, particularly in the steel industry, a plan as practiced by the Youngstown Sheet and Tube Company, of Youngstown, Ohio, for the past 15 years, and outlined in a booklet issued by the company, is of timely interest. This is known as the Employes' Representation Plan, a form of collective bargaining, which is said to have worked to the satisfaction of both employes and management.

"Caterpillar" Twenty-Eight Tractor.—The Caterpillar Tractor Company, Peoria, Ill., announces the Twenty-Eight Tractor to succeed model Twenty-Five. This unit, illustrated and described in a special folder, incorporates all features of design and construction found in model Twenty-Five, plus increased power and weight.

Westinghouse Achievements.—The Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has issued "Engineering Achievements in 1933," a booklet of 36 pages.

Austin-Western Road Machinery.—General Reference Catalog for 1934 (Catalog 1320) has been issued by The Austin-Western Road Machinery Company, Chicago, with Southern service branches in Atlanta, Ga.; Charleston, W. Va.; Chattanooga, Tenn.; Columbia, S. C.; Dallas, Tex.; Jackson, Miss.; Jacksonville, Fla.; Kansas City, Mo.; Knoxville, Tenn.; Lexington, Ky.; Memphis, Tenn.; Miami, Fla.; Mobile, Ala.; Montgomery, Ala.; Morganfield, Ky.; New Orleans, La.; Oklahoma City, Okla.; Orlando, Fla.; Raleigh, N. C.; Richmond, Va.; St. Louis, Mo.; San Antonio, Tex.; and Tampa, Fla.

Aluminum Plate Tanks

Among recent installations of tanks in the South fabricated by the Chicago Bridge & Iron Works are two shipments shown in the accompanying illustrations. The view on the left is that of a group of tanks built of aluminum plates at the Birmingham branch of the Chicago Bridge & Iron Works for the Hercules Powder Company's plant at Hattiesburg, Miss. The aluminum plate tank on the right is 87 inches in diameter and 31 feet 6 inches long for the Crossett Chemical Co., at Crossett, Ark.

Standards for Self-Priming Centrifugal Pumps.—Among the first to produce a commercially successful self-priming centrifugal pump, the Labour Company, Inc., Elkhart, Ind., has issued a 30-page booklet covering a set of standards upon which different types of this pump may be specified and purchased.

Wood Preservative. — The Carbolineum Wood Preserving Company, Milwaukee, Wis., manufacturers of "Avenarius Carbolineum," a wood preservative, is distributing Folder 12, on the prevention of damage by termites; Service Folder 20, describing the product and illustrating applications; Builders Service Folder 80, and Cold Facts Folder 93.

Phosphor Bronze and Copper.—Literature recently published by the Riverside Metal Company, Riverside, N. J., includes a booklet devoted to Riverside Phosphor Bronze. It presents specific data on Phosphor Bronze of value to fabricators' engineering staffs, research laboratories and purchasing departments. The company is also distributing a booklet on Beryllium Copper, which it produces in every variety of sheet strip, wire and rod.

Coe Drainator.—The Coe Manufacturing Company, Painesville, Ohio, builders of drying equipment for the veneer, wallboard and other industries, has developed the Coe Drainator, described as a "radically simpler and surer method of removing condensate." This new unit is described and illustrated in a folder issued by the company, presenting performance charts, capacity tables, and a list of representative installations in various industries. The Coe company is interested in securing engineering sales representation.

Parker-Kalon Literature.—Literature recently published and now being distributed by the Parker-Kalon Corporation, New York, includes a bulletin devoted to the Hyro Automatic Furnace in its latest development, for cyanide hardening and heat treating by other liquid bath processes. The company has also issued the 4th edition of the Parker-Kalon Catalog-Data Book, covering the uses of Parker-Kalon time and labor-saving fastening devices for making fastenings to sheet metal and steel; iron, brass and aluminum castings; bakelite, slate and other substances; to masonry, and for fastening sheet metal to wood, etc.

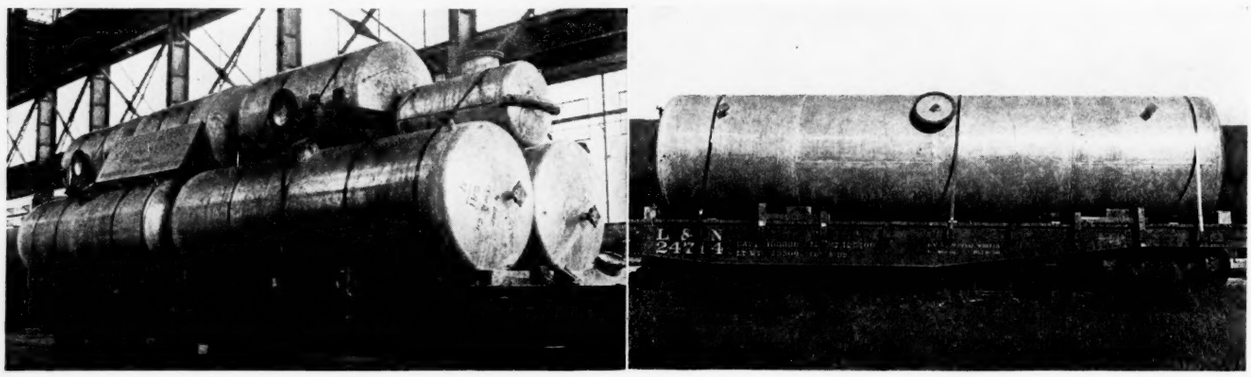
L. B. Nutting

Louis Blackstone Nutting, president of the Foster Wheeler Corporation, New York, died on January 12, age 63. In 1893 he joined Henry R. Worthington, the pump builder, and remained with him for three years. When the Foster Wheeler Corporation was formed in 1930 by the consolidation of two other companies in which Mr. Nutting had a primary interest, he was made president and director.

Death Of Arundel Corporation Chairman

The recent death of Frank A. Furst, chairman of the board of the Arundel Corporation, Baltimore, removed an important figure in the industrial and construction activities in the East and South, these activities extending from New Orleans to Chicago, and from Miami to Boston. Born in Germany in 1845, Mr. Furst came to this country at the age of 3 when his parents settled in Baltimore. After being connected with the Pennsylvania Railroad in its elevator business, in 1899 he formed the Maryland Dredging and Contracting Company which developed into one of the largest dredging organizations operating on the Eastern Seaboard. About 1908 he became interested in the production of sand and gravel and in heavy contracting work, forming several companies which were consolidated in 1919 into the Arundel Corporation. This company has handled contracts on some of the most important dredging and construction jobs in the country, among the larger ones completed being the excavating for the Cape Cod Canal, involving the digging of a channel 100 feet wide and 13 miles across the Cape Cod Peninsula. The work was difficult and required some 15,000,000 cubic yards of excavating. The company also completed several contracts on the Everglade drainage project, which involved the excavation of approximately 35,000,000 cubic yards. Over a period of 15 years the company handled subaqueous rock excavation around New York harbor, involving 12 contracts and the removal of more than 1,000,000 cubic yards of rock. Dredging contracts also were handled for work at various points along the Eastern coast from Portland, Maine, to Key West, Fla.

Large construction contracts completed by the company include Pier No. 3 at the Philadelphia Navy Yard, which was the largest graving dock in the United States at its completion; dam and spillway of the Conowingo Hydro Electric Development, involving the placement of more than 400,000 cubic yards of concrete; completion of Saluda Dam near Columbia, S. C., the largest earth dam in the world, involving 11,000,000 cubic yards of earth fill; full completion of Safe Harbor Hydro-Electric Development on the Susquehanna River, involving the placement of 500,000 cubic yards of concrete; large outfall sewer projects in Brooklyn and Buffalo, N. Y., and Louisville, Ky. The company also completed a large amount of railroad work, including new lines, tunnels, breakwaters, dock facilities and bridges.



ARCHITECTS AND CONTRACTORS
are invited to call on us for estimates for fine Interior Cabinet Woodwork.

Waiting Room, Secretary's Suite, Department of Commerce, Washington, D. C.
Wainscoting—doors—frames—pediments and columns furnished
By MITCHELL
The Robert Mitchell Mfg. Co., Cincinnati, O.

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LYNCHBURG, VA.

Manufacturers of
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For Water and Gas Service

POLES
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CROSS TIES
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8 TO 20 TIMES LONGER LIFE FOR YOUR LUMBER AND TIMBER

Wood products that are pressure-treated with ZMA or Creosote have a life of from 8 to 20 times that of unpreserved lumber. Once treated in this way in Eppinger & Russell Co.'s preserving plants, construction lumber and timber are permanently immune to dry rot, decay and termite attack.

ZMA treated woods are clean and odorless, without any discolorations, and can be painted or stained any desired color. Complete information on request.

PRESSURE TREATING PLANTS
Jacksonville, Fla.—Long Island City, N. Y.

WOOD PRESERVERS SINCE 1878
EPPINGER & RUSSELL CO
84 Eighth Ave., NEW YORK CITY

CREOSOTED TIES, PILING, POLES, POSTS, CROSS ARMS, and LUMBER

WOLMANIZED LUMBER—
Decay and Termite Proof—Can Be Painted

Docks for Ocean Vessels

American Creosote Works, Inc.
New Orleans, La.

Atlantic Creosoting Co., Inc.
Norfolk, Virginia

Plants at: New Orleans; Winnfield, La.; Louisville, Miss.; Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

NRA MEMBER U.S. WE DO OUR PART

Pumps—Deep-Well Plunger and Turbine
Strainers—and other well supplies
WATER PRESSURE SYSTEMS
A. D. COOK, INC.
Lawrenceburg, Indiana

STEEL PLATE CONSTRUCTION
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Acid Tanks	Digestors	Jacketed Tanks	Settling Tanks
Breechings	Dryers	Molasses Tanks	Standpipes
Condensers	Filters	Oil Storage Tanks	Stills
Coolers	Gasoline Tanks	Pressure Tanks	Vacuum Tanks

LANCASTER IRON WORKS
LANCASTER, PA.

Water Purification Plants
Any Type—Any Purpose—Any Capacity
Dry Chemical Feed Machines
Swimming Pool Filters
E. W. BACHARACH & CO.
Rialto Bldg. Kansas City, Mo.

Bristol Steel & Iron Works, Inc.
STRUCTURAL STEEL
For Bridges, Buildings and All Industrial Purposes
Steel Plate and Miscellaneous Iron Work
Complete Stock Shapes, Plates, Sheets and Bars for Immediate Shipment
BRISTOL, VIRGINIA-TENNESSEE
"SAVE WITH STEEL"

WATER FILTERS
Pressure and Gravity type for Municipal Water Supplies, Rayon Manufacturing Plants, Textile Finishing Establishments, Raw Water Ice Plants, Laundries, Etc.
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Snead Architectural Iron Works
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ORNAMENTAL IRON
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Northern Hard Rock Maple Flooring
BLOCK Holt Hardwood Co., Oconto, Wis. STRIP
MEMBERS OF MAPLE FLOORING MANUFACTURERS ASSOCIATION

PORCELAIN ENAMEL

The Product of Ancient Art And Modern Science Now Has Many Industrial Uses

By

Herbert Turk

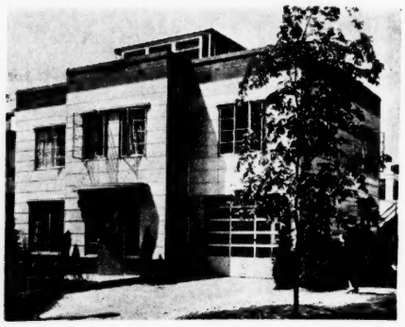
THE Egyptians and other ancients were the first to use porcelain enamel as a preservative of their precious metals and objects of art. The Chinese were the first commercial enamelers, but the Europeans were the first to use porcelain enamel on a production basis, mainly in finishing kitchen utensils. The industry has grown until porcelain enamel is now used extensively not only in households, but in industry. Modern science and improved production methods are responsible for the progress made, which enables porcelain enamel products to be marketed at a reasonable price.

Porcelain enamel has been described as the highest attainment in ceramic art. For centuries its manufacture was regarded as a mystery, but this is no longer the case, as through scientific methods it is produced to meet exacting requirements and with a wide range of uses.

The raw material, brought from the four corners of the earth, is put together and thoroughly mixed. It is then smelted at a high temperature into a molten mass of glass. When heated for a sufficient length of time it is released in water and because of the sudden contraction is crumbled into fragments. In this state the glass is known as "frit."

The next step is to the mill, where the frit is ground with water, clay and coloring oxide until it reaches a creamy state. The enamel is then ready for dipping or spraying on the base that is to be used, such as cast iron or sheet steel after the metal has been thoroughly cleaned. After the dipping or spraying it is passed through a dryer and thence into a furnace where it is brought to a white heat temperature. This is the most important part of the manufacture, for the non-porous metal must be fused into the pores of the metal base. The quality of the finished product depends largely upon the preceeding operations. Porcelain enamel, through its application to a base, actually becomes a part of the base structure. In the kitchens of our modern homes are to be seen some of the best examples of the finished product in cooking utensils, stoves, ranges, tables, refrigerators and other household equipment.

The manufacturers claim that one of the greatest merits of the product is that it is not soluble. Its durability and attractiveness have made porcelain enamel popular in the advertising field when used for signs, because signs made of this material, manufacturers point out, do not peel, discolor, rust or tarnish. The fact that the product withstands the natural elements has led to the development of the so-called Glasiron roofing shingle. These shingles have a stamped metal base, constructed to prevent seepage and are obtainable in practically all colors. The first installation was made in the City of Detroit 15 years ago and it is understood has cost nothing for maintenance since, while retaining the original luster and finish. This was probably the first entry of porcelain enamel in the building field as an exterior building product.

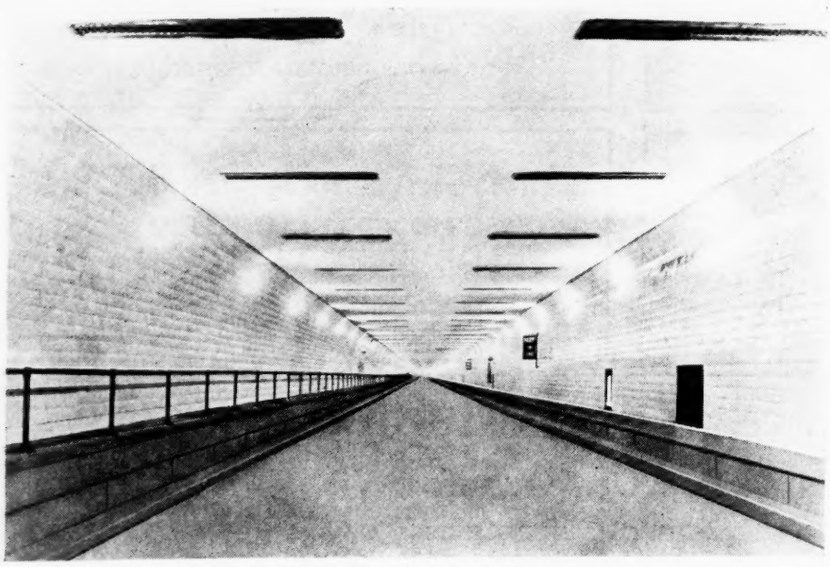


Porcelain Enamel Steel House
Shown at the Century of Progress Exposition and built for the American Rolling Mill Co. by the Insulated Steel Construction Co., using newly developed patented frameless steel construction which makes possible rapid field erection and economic building costs

Tile of this material was used in the Detroit-Windsor tunnel and was selected because it was necessary to withstand not only the surface conditions but also those that would be encountered under the bed of the Detroit River.

A new building unit is Glasiron Macotta. This is obtainable in units varying in strength from load bearing capacity to veneered sections in sizes from three to nine inches to three by seven feet. It is made of a light weight concrete with a sheet steel covering that has been impregnated into porcelain enamel. The sheet is fastened to the concrete by a patented method and is altogether flat, the edges being protected by special construction. The enamel is of a special composition and is guaranteed both as to finish and color for the life of the building. One of the outstanding installations of Glasiron Macotta is the Good Housekeeping Stran-Steel House at the Century of Progress Exposition. The entire exterior facing of this modern and beautiful home is of Glasiron Macotta finished in porcelain enamel.

Porcelain Enamel Tiled Walls of Detroit-Windsor Tunnel



A Correction

In an account of the improvement noted in Norfolk and Western Railway territory, published on page 40 of the January MANUFACTURERS RECORD, the number of employes in the 118 new plants and additions established during the first 11 months of 1933 was incorrectly given as 1,431 employes. This number should have been 7,431 employes as compared with 4,421 for the 106 new plants and additions reported in 1932.

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Presents "MILLERIZING"

MILLERIZED · FOR LONGER LIFE · APPROVED PROCESS OF SATURATION

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This is a scientific, patented process which saturates every fibre of the roofing felt with asphalt more thoroughly and uniformly than any other process. Our nearest Sales Office will be glad to demonstrate this process or send you complete literature on the subject.

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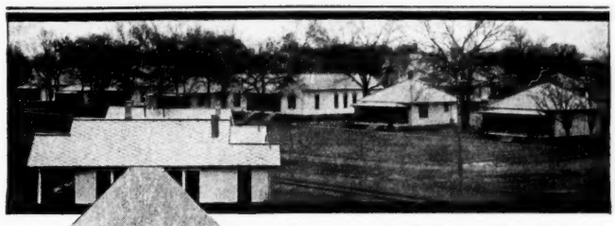

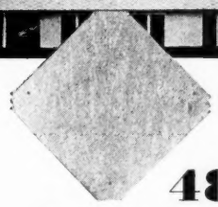

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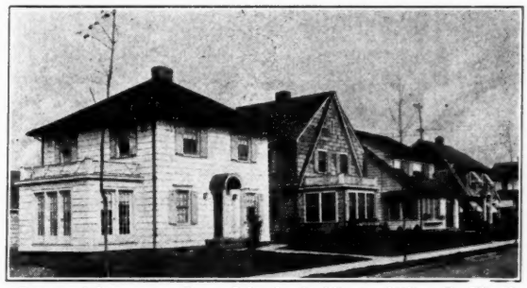

Group of houses on Long Island, Architect, Arthur B. Wood, Garden City, L. I. All shingles stained with Cabot's Creosote Shingle and Wood Stains.

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Cabot's Creosote Shingle and Wood Stains are made with pure refined Creosote, the best wood preservative known. Shingles stained with them last twice as long. At the same time they beautify as well as preserve and their soft rich colors sink into the wood and are much more permanent than any "painty" type of stain.

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Gentlemen: Please send me full information on Cabot's Creosote Shingle and Wood Stains.

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New Bankruptcy Amendments

(*Continued from page* 17)

Section 76 merely provides that moratoria granted pursuant to Sections 74 and 75 shall extend the obligation of any person secondarily liable.

Section 77 providing for the re-organization of railroads seems to present a practicable and important means of rehabilitation of our great arteries of commerce. I believe that if conditions in transportation circles had continued to retrograde, the utility of this Section would, alone, almost have justified the new Amendments. However, with the marked improvements in the earnings and status of railroad companies, the necessity for this particular piece of legislation has somewhat diminished. It is only fair to state, however, that the method provided in Section 77 for the re-organization and regeneration of common carriers presents a valuable means of enabling railroads to extricate themselves from financial difficulties, free from the expense and inconvenience of equity proceedings, which necessarily involved, as regards interested corporations, numerous ancillary receiverships, with the incident expense and lack of coordination. The benefits of Section 77 may be petitioned for by the railroad itself or by creditors, and the plan of re-organization is subject in many respects to the approval of the Interstate Commerce Commission.

The Supreme Court of the United States promulgated appropriate forms and general orders under the new Sections.

This rather sketchy summary of the content of the Amendments to the Bankruptcy Act will serve to convey some idea of the purpose and intent of the changes that have been made and of the means whereby the ends are to be accomplished.

Some of the provisions have been attacked by students of the law upon the theory that their scope exceeds the powers of Congress, under the Constitution of the United States. Furthermore, the Amendments have been severely criticized because of the contradictory and ambiguous character of the provisions themselves, both interests, and as regards other unrepealed provisions of the Act of 1898. Time will not permit, nor will any particularly useful purpose be served by an examination of the arguments pro and con.

It may, however, be pertinent to add that practitioners in the Bankruptcy Courts and students of Bankruptcy Law have over a long period of time directed attention to deficiencies in the National Bankruptcy Act, as it existed prior to the 1933 Amendments. It has been the desire of the Bar to remedy the defects and to eliminate the weakness existent in the Statute. A general re-definition of insolvency so as to comport with practical requirements and so as to correspond with progressive legislation in other countries, has been thought desirable. The strengthening of the discharge features of the Act, so as to convert the discharge of the bankrupt into a privilege to be earned, rather than a right to be invoked, has been deemed expedient. The enlargement of the clauses of the Act relative to preferential transfers and the revocation thereof, has been considered essential. The stricter examination into the affairs of a bankrupt and his conduct prior to bankruptcy has been regarded as important. A more carefully prescribed and more expeditious method of administration of the assets of the bankrupt, so as to yield greater dividends to creditors, has appeared to be requisite. But no one of these very vital changes in the substantive and adjective law of bankruptcy is found in the Amendments: the policy of the amendatory provisions is, in reality, properly expressed by its catchpenny title and that is, "Provisions for the Relief of Debtors." A stricter administration of the law, a more equitable distribution among creditors, a more critical examination into the affairs of the bankrupt, a greater insistence upon freedom from fraud and concealment, were subordinated to the ardent desire of the law-maker to attune the legislative instrument to the theme of the day, which was and still is, economic rescue and financial resuscitation. It is submitted that the relief to be accorded to an unfortunate insolvent is not inconsistent with a due regard for the interests of creditors, nor incompatible with a requirement that the insolvent should come into Court with clean hands, and should be free from fraud, concealment and imposition.

Lest it be inferred that criticism of the Act of 1898 and the Amendments of 1933 is purely destructive, a group dedicated to the formulation of a fair, intelligent and workable Bankruptcy Act has just completed the draft of a third tentative Bill, created in response to the suggestion that those who have been the critics should constitute themselves the composers of a model Bankruptcy Act. This group was composed, among others, of Jacob Lashly, Chairman of the Committee on Bankruptcy of the American Bar Association, Robert A. B. Cook, Chairman of the Committee on Bankruptcy of the Commercial Law League of America, Reuben G. Hunt, an eminent bankruptcy lawyer of San Francisco, Judge Paul H. King, Referee in Bankruptcy of Detroit, Professor McLaughlin of Harvard University, Frank W. Stonecipher of Pittsburgh and Jacob Weinstein of Philadelphia, prominent bankruptcy practitioners. These gentlemen animated solely by altruistic impulses labored for more than a year, have held three sessions each extending over a continuous period of about a week, and have devoted themselves conscientiously to the task of drafting a comprehensive and satisfactory bankruptcy act. It is planned to present this Bill, when whipped into final form, to Congress for adoption. Whether or not it will meet with the approval of our National Legislators is, of course, problematical; but, in any event, those who have examined the draft agree that it represents, for the first time in the history of the United States, the concerted effort of persons competent to speak with authority upon the subject of bankruptcy. It epitomizes the result of serious, intelligent and mature deliberation. The Bill aims to correct the defects and weaknesses which the experience of years has manifested and at the same time it provides progressive and forward-looking legislation in response to present and future needs.

It is believed that if a Bill drafted by the co-ordinated effort of theoretical, as well as practical, minds, be enacted into legislation, the beneficent purposes sought to be achieved by bankruptcy laws will be accomplished, that is, an opportunity will be granted to an honest and unfortunate debtor to extricate himself: from an overwhelming burden of debt and to rehabilitate himself; and at the same time protection will be afforded to the interests of creditors in a fair and equitable distribution of the assets of the bankrupt, an assurance that his conduct prior to and during the bankruptcy proceeding has been free from criminality, concealment and fraud. This dual purpose, the rehabilitation of the debtor and the protection of the creditor, is the underlying principle of all insolvency Statutes.

Considerations of practical economic expediency and of modern humanistic impulse combine to guide our course in that enlightened direction.

Manufacturers Association Elects Officers

Clinton L. Bardo, president of the New York Shipbuilding Corporation, Camden, N. J., has been elected president of the National Association of Manufacturers to succeed Robert L. Lund of the Lambert Pharmacal Co., St. Louis, who becomes chairman of the Board of Directors. George H. Houston, president of the Baldwin Locomotive Works, Philadelphia; Charles R. Hook, president, The American Rolling Mill Co., Middletown, O.; and E. C. Heidrich, Jr., president of the Peoria Cordage Co., Peoria, Ill., were elected vice-presidents. Henry Abbott, president of the Calculagraph Co., New York City, was elected treasurer, and Noel Sargent, secretary, 11 N. 42nd St., New York.

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HAVE THEY MADE YOU A

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There's a way around the difficulty . . . Do as others are doing . . . Increase your equipment's efficiency . . . Cut hourly loss . . . Save costly time . . . Get more work done per dollar of operating cost . . . You can do it with

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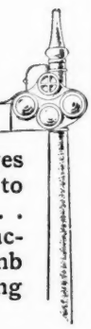

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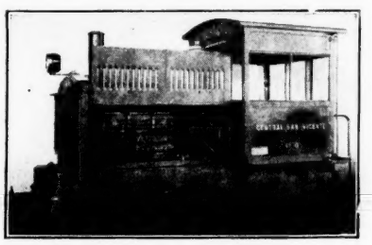

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Buckets in Power-Arm, Multiple-Rope, and Dragline types—for every need . . . Arch-Girder Trailers from 5 to 60 tons capacity. Write for descriptive bulletins.

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Boxley, Greensville County, Va.

W. W. BOXLEY & COMPANY

Room 711, Boxley Building,-ROANOKE, VA.

Woodpulp and Paper Industry

(*Continued from page 15*)

from 23.5% to 30.3%. The use of the other processes did not vary greatly during this period. This increased use of the sulphate process indicates an increasing use of yellow pine in the Southern mills.

The leading types of wood consumed as pulp wood in 1932 were as follows; spruce, 36.1%, of the total for the country; yellow pine, 22.7% of the total; hemlock, 14.3%; fir, 5.2%; and poplar, 4.9%. In the two-year period from 1930-1932, the use of yellow pine in the production of pulp increased from 14.3% to 22.7% of the total. This was accounted for by the substantial increase in the output of pulp in the Southern pine belt. The relative use of the other types of wood decreased slightly in this period.

The bulk of the timber in the Northeast and the Great Lakes districts, where the paper and pulp industry is at present centered, is spruce, and for this the mechanical and sulphite processes are used. The soda process is widely used in hardwood regions. Up to the present time, the sulphate process has been the only important process used commercially in the South, in the yellow pine areas. The mills in these pine areas in the South have been engaged principally in the production of kraft paper, which is brown in color, rather coarse in texture, and used chiefly for wrapping paper. Up to the last few years it was thought that kraft paper was the only kind that could be made of pine wood, because of the resin content.

However, recent experiments have demonstrated that in young pine timber, especially in the sap wood rather than the heart wood, there is extremely little resin. If the sap wood is allowed to remain on the ground a few weeks after cutting, the moisture in it disappears, and there is no resin at all. This means that such young pine sap wood can be treated by the sulphite or acid process as readily as spruce, resulting in a high grade white paper. Experiments have also shown that young slash pine sap wood can be bleached pure white, at the same cost and with the same quantity of bleaching, as that required by spruce. These chemical discoveries should have a far-reaching effect on the paper and pulp industry of the South, permitting it to extend its operations to various grades of white paper, in addition to kraft paper. As explained in a previous issue of the MANUFACTURERS RECORD, nine Southern newspapers recently printed their entire editions for one day on white newsprint made from Southern yellow pine.

The first paper made in the South from Southern pine was at Pensacola, Florida, in 1908. This plant, which manufactured kraft paper, was later moved to range, Texas. The Southern Paper Company started operations at Moss Point, Mississippi, in 1913, and the Bogalusa Paper Company at Bogalusa, Louisiana, in 1918. These plants were the forerunners of the important plants that we have today in the South.

There now are eighty pulp and paper mills in the South, these mills having a gross daily capacity of 13,600,000 lbs. Among the Southern states, Virginia has the largest number of these plants, having fifteen; followed by Maryland, with twelve; Louisiana, with nine; and Tennessee, with eight. However, the capacity of the Louisiana plants is the largest of any of the Southern states, being 3,440,000 lbs. daily. Virginia mills have the next largest capacity, 2,655,000 lbs. daily; followed by Maryland, with 1,310,000 lbs; Tennessee, with 1,090,000 lbs; Alabama, with 900,000 lbs; Florida, with 830,000 lbs; and Mississippi, with 820,000 lbs. In recent years a number of large pulp mills have been constructed in the lower Southern states of Florida, Georgia, Alabama, Mississippi, and Louisiana.

The lower cost of production is an excellent reason for the setting up of mills in the South. The operating costs of the machines in most paper and pulp plants are fairly uniform, there not being a great deal of difference in such costs, in the different sections of the country.

However, the principal cost in paper and pulp production is for material, and in this, the South possesses an advantage not equalled by any other section of the country. There have been given many figures for the comparative cost of wood in the South and the other sections of the country, and these vary considerably. A consideration of all these figures from reputable sources shows that on an average, the cost of wood in the South is approximately one-third that in the Northeast and Great Lakes districts. This is accounted for by the abundance of timber now found in the South, and the remarkably short growing season of trees in this section of the country. Whereas spruce trees in the North require 50-60 years to reach pulpwood size, the pines of the South reach this size in 15-20 years. In fact, the new method of using young pine trees with little or no resin permits the use of them when they are only 7 years old. The supply of spruce is being rapidly depleted in the North, while the Southern pine is increasing rather than decreasing. Forty per cent of the annual timber growth in the country is found in the South. There is five times the potential supply timber in the South as in the Northeast.

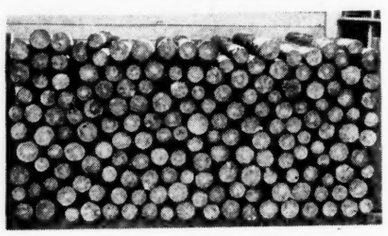
Power costs in the South are very low, as compared with other sections. Coal and oil are both available for power. There is an abundance of pure, running water, which is so essential for paper and pulp production. There is also a large supply of clay in Georgia, which is more than ample for the industry's needs. Resin, used for paper sizing, is produced in the naval stores belt, which stretches across the entire lower South.

Due to the warm climate, little or no fuel is required for heating the plants, in winter, as in the North. Also, because of this climate, operations can go on without ceasing the entire year, whereas it is necessary to shut down the plants in the North on account of the cold, which means a considerable loss in idle capital. Labor costs are lower in the South, with a plentiful supply of contented labor, which means a minimum of labor troubles, with their expense and worry. Transportation facilities are excellent, there being water transportation in addition to the railroads at all of the seaboard plants in the South. The rates for this water transportation are low. Many more advantages of the South in the production of pulp and paper could be cited, but the foregoing seem to be convincing enough to cause the industry to increase the number of its plants in this section.

A decentralization of the paper and pulp industry, such as that which has taken place in the textile, furniture, and boot and shoe industries, causing these industries to move closer to the source of raw materials, seems very likely to occur in the near future. Thus, we may expect to find the paper and pulp industry of the future close to the forests from which the wood is obtained. Besides the wealth and economic activity brought into communities by a new industry, this will also help agriculture by furnishing a new use for the land, and so decreasing the amount of land that is now used entirely for agriculture.

Wise business men, business associations, and governing bodies throughout the South, realizing the benefits and advantages to be obtained, are encouraging the establishment of the paper and pulp industry in their communities.

Pine Pulpwood



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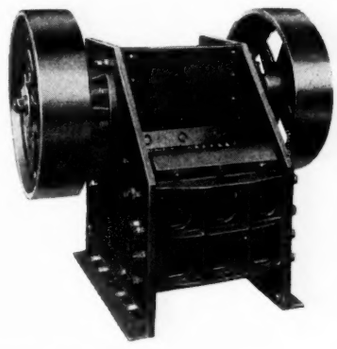

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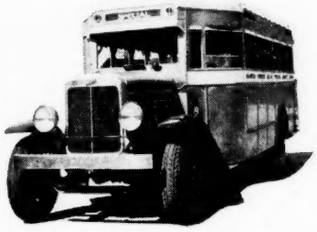

Combatting Soil Erosion

(*Continued from page* 16)

soil erosion are: The building of terraces in sloping fields. The construction of soil-saving dams and check dams in the gullies.

Recently, however, an entirely new method of erosion control has been developed—the blasting down of gully banks. This new use for explosives is employed in connection with check dams to prevent further wearing away of the land and to prepare the broken banks for grading and reforestation. Terraces are utilized to round out the program of erosion prevention.

The use of high explosives for erosion control was developed through the joint efforts of Federal and State agricultural and forestry officials and blasting experts of E. I. du Pont de Nemours & Company, working with the C.C.C. camps in the South. The method has proved highly practical, economical and speedy and this use of explosives appears to offer similar effective results when applied to soil conservation work throughout the country.

To get the best results from check dams in gullies, tops of dams should be low enough in the middle and high enough at the ends to carry the runoff water after heavy rains without overflowing gully banks or washing soil around ends of dams, say engineers of the United States Department of Agriculture.

If dams are too high, the carrying capacities of gullies are reduced and water overflows their banks and washes around the ends of the dams, and can form new gullies down the slopes parallel to the old ones. Where dams are watertight the ends should extend far enough into the gully banks to prevent water seeping around the dams and washing away the sides of gullies.

Foundations of dams should extend far enough below the bottoms of the gullies so that hydraulic pressure will not force the water under the dams, to undermine and destroy them. The floors of gullies should be paved at the lower sides of the dams for sufficient length and width to prevent any erosion or undermining of the dams by water dropping over the crests.

Dams are built in gullies to cause their filling with sediment carried by runoff water and to check soil erosion. When gullies in cultivated fields are filled, farmers save much time and labor in cultivating and harvesting crops. Filled gullies in pasture lands eliminate danger of accidents to grazing animals.

Temporary dams usually are made of materials found on farms, such as stakes, brush, straw, logs and loose rock. Woven wire is also used. Most temporary dams are porous when first built, but the spaces gradually fill with trash and soil brought down by the water. Permanent dams are built of earth, masonry and concrete.

Modern Road Machinery

Among the applications of Austin-Western machinery in highway construction and maintenance shown in its December-January issue of "Make'n the Grade," are two graders on Southern jobs. The accompanying illustrations tell their own story.

Other equipment illustrated and described included the Austin Badger Shovel, No. 10 Hydraulic Controlled Grader, Cletrac tractors in many operations, Austin Hand Controlled Graders in maintenance work, Western Power Wheelers, Austin Tandem Rollers, Western Bulldozers, and other types of equipment made by the Austin-Western Road Machinery Co.

Austin "77" Grader

St. Louis uses the 77 Austin Dual Drive Motor Grader to grade, ditch and shape its streets. Notice the heavy bite taken by the blade, the heavy windrow of dirt clods clearing the rear wheels and the clean shaven surface at the rear over which the blade has passed

Austin 12-Foot Grader

Moving capacity load of sandy loam and rock on highway job in Jasper County, Ga. Powered by Cletrac 80 Diesel tractor

Ancient and Modern Roads

The chief difference between the ancient Roman road, or Appian Way, and the modern highway is that the present-day highway engineer relies upon the soil to bear the load, with the pavement serving as a wearing surface and roof to protect the supporting sub-grade soil, while the Romans depended solely upon massive construction. The Appian Way was visualized at the recent convention of the American Road Builders' Association at the Stevens Hotel, Chicago, by a large model prepared by the Bureau of Public Roads. The model will be permanently located in the National Museum in Washington.

Using modern ideas, present-day road builders have been able to build more extensive highway systems at a small part of the cost of the Roman roads, it is said. With many new forms of transportation, modern highways serve not only as a means of swift communication, but as collection agencies for goods and people that use other forms of transportation.

Virginia Industrial Directory.—The Virginia State Chamber of Commerce, Richmond, has issued a preliminary draft of an industrial directory of the State which shows that 400 industries employ more than 50 workers each. The final study contemplates, not only listing all industries, but their classification by counties and cities, lines of trade, products, etc.

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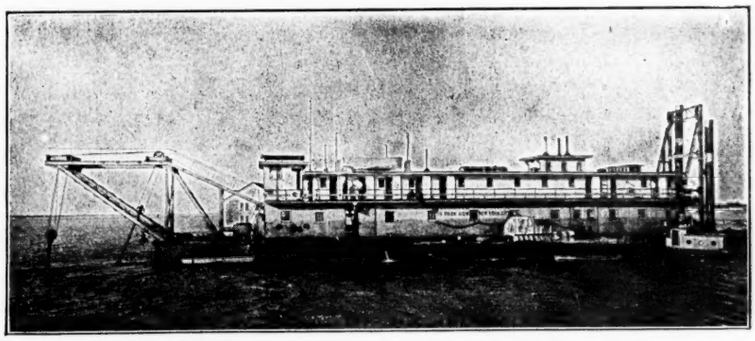

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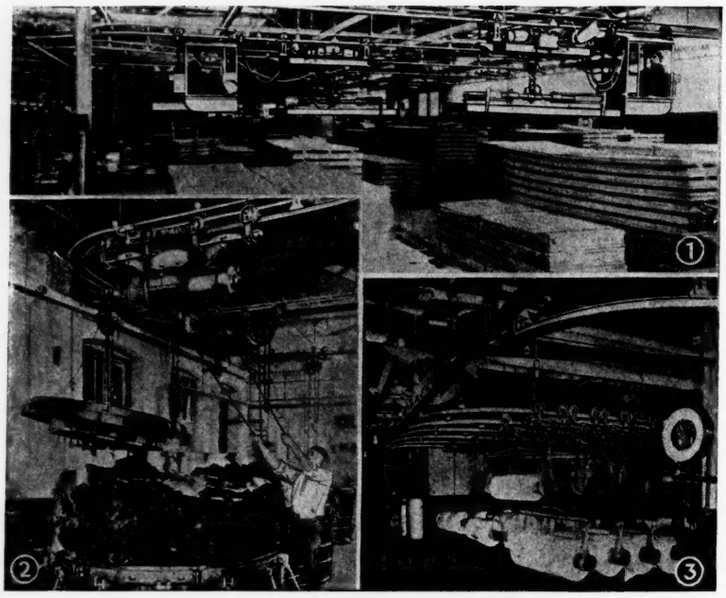

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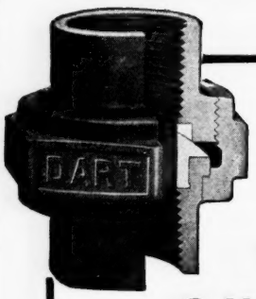

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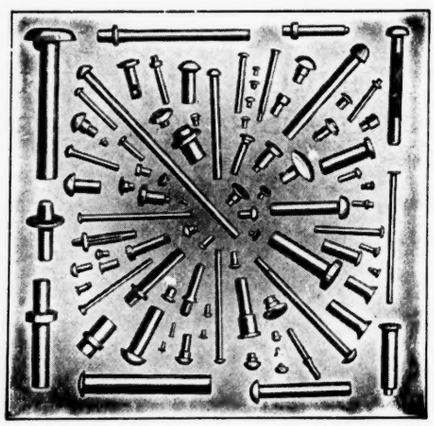

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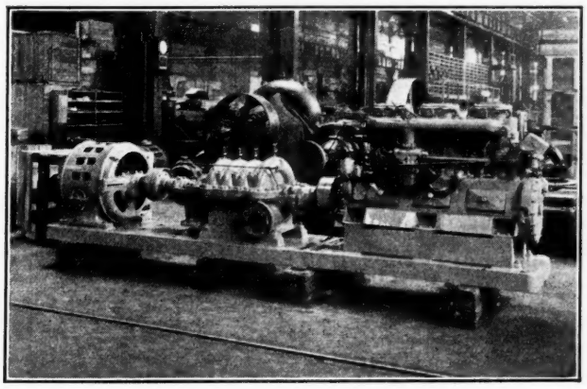

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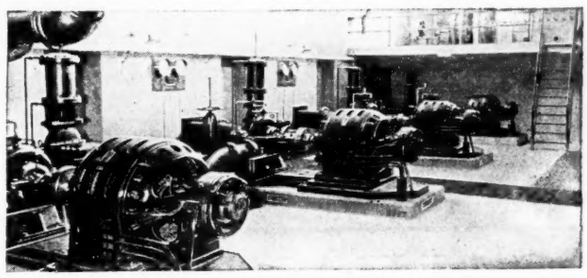

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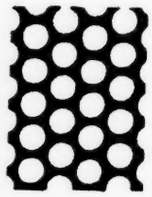

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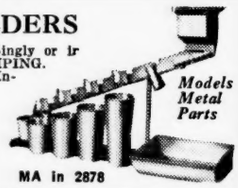

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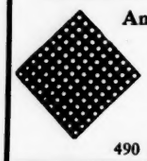

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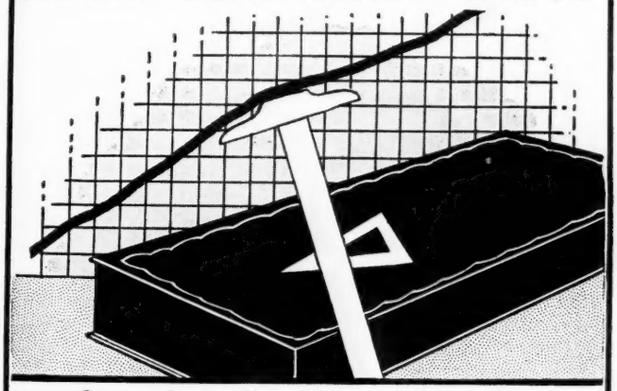

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Buys Port Wentworth Properties

Headed by Robert M. Nelson, of New York City, the Port Wentworth Corporation has incorporated under the laws of Georgia to take over and operate industrial properties at Port Wentworth, near Savannah, Ga., of the Port Wentworth Company, Boston, Mass. The property embraces 2500 acres, the deal covering all real estate and personal property of the Port Wentworth Company (except cash), and comprising about 1800 acres at or near Port Wentworth and 700 acres on Onslow Island, as well as railway tracks, rights of way, etc., from the main line of the Savannah and Atlanta Railway to various industries at Port Wentworth. The new company plans to cooperate actively with existing plants and residents of Port Wentworth and to make determined efforts to attract other industries. J. J. Auld will continue in charge of the property. Mr. Nelson, president of the new corporation, is also president of Piedmont Associates, Inc., and is largely interested in the Savannah and Atlanta Railway.

Improvement Program

Having received the first installment of the $77,000,000 loan provided by the Public Works Administration, the Pennsylvania Railroad is actively carrying forward the most extensive single program of railroad improvement in many years.

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